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EDMUND RUFFIN, EDITOR AND PROPRIETOR.

TOBACCO AND WHEAT CULTURE COMPARED.

To the Editor of the Farmers' Register.

Happening the other day to take up Arthur Young's "Agricultural Tour through France," a work of great and acknowledged merit, which gives the best account I have ever seen of the soil, climate and agriculture of that extensive and fertile country, I was struck with a passage which has reference to the husbandry of Virginia—and as the work is perhaps not known to many of your readers and correspondents, and may not be in your possession, I have copied the passage, which you will publish in your Register, or not, as you think best. I know not whether you will think it worthy of a place there, but I am persuaded that it gives a lesson well worthy of the attention of our most active and judicious cultivators.

The work is divided into two parts—one a Journal of his Travels, with remarks on the agriculture, &c. of the districts he passed through; the other of the Heads or Chapters on the soil, climate, agricultural products, &c. There is one on the culture of tobacco, from which you have the following extract:—

"Tobacco, as an object of cultivation, appears in these notes to very great advantage; and a respectable author in France declares, from information, that instead of exhausting the land, it improves it like artificial grasses;* which seems to agree with my intelligence; yet the culture has been highly condemned by others. Mr. Jefferson observes thus upon it: "It requires an extraordinary degree of heat, and still more indispensably an uncommon fertility of soil: it is a culture productive of infinite wretchedness; those employed in it are in a continued state of exertion, beyond the powers of nature to support: little food of any kind is raised by them: so that the men and animals on these farms are badly fed, and the earth is rapidly impoverished. The cultivation of wheat is the reverse in every circumstance: besides clothing the earth with herbage and preserving its fertility, it feeds the laborers plentifully; requires from them only a moderate toil, except in the season of harvest; raises great numbers of animals for food and service, and diffuses plenty and happiness among the whole. We find it easier to make an hundred bushels of wheat, than a thousand weight of tobacco, and they are worth more when made."† This authority is respectable; but there are circumstances in this passage which almost remove the dependence we are inclined to have on the author's judgement. The culture of wheat preserving the fertility of the soil, and raising great numbers of animals! What can be meant by this? As to the exhausting quality of wheat, which is sufficient to reduce a soil almost to a *caput mortuum*, it is too well known and too completely decided to allow any question at this time of day; and how wheat is made to raise animals we must go to America to learn—for just the contrary is found here. The farms that raise most wheat have fewest animals; and in France, husbandry is almost at its lowest pitch for want of animals, and because wheat and rye are cultivated, as it were, to the exclusion of other crops. Tobacco cannot demand an uncommon degree of heat, because it has been cultivated on a thousand acres of land successfully in Scotland; and as to the demanding of too great exertions, the free hands of Europe voluntarily addict themselves to the culture, which has nothing in it so laborious as reaping wheat. I take the American case to be this—ill husbandry, not tobacco, exhausted the land. They are now adopting wheat; and, if we may judge from the notions of the preceding quotation, that culture will in a few years give the finishing stroke to their lands—for those who think that wheat does not exhaust, will be free in often sowing it, and they will not be long in finding out what the result will prove."

You see that Mr. Jefferson's observations on the cultivation of tobacco in Virginia, are very far from receiving the approbation of Mr. Young. Mr. Jefferson's reputation does not rest on his knowledge of agriculture; and I think it will generally be agreed, that the passage from his Notes on Virginia, quoted by Young, is at best, very loosely written—and, apparently, without due consideration of the comparative advantages and disadvantages of wheat and tobacco crops. His notion that tobacco is a much greater exhauster than wheat, I believe was almost universal in Virginia at the period when his notes were written. It is, I think, very far from being as general now, with regard to the crop itself. But I am not sure, that as a system, the culture of tobacco is not much more exhausting than that of wheat. Granting, what I believe, that a single crop of tobacco reduces the fertility of the soil less than one of wheat, we must take into account, the much greater number of hands required for a given space—and of course the much more extensive crops of corn required; so that the question is not simply whether wheat or tobacco exhausts the most, but whether tobacco, with the increased crop of corn which it requires, does not injure the soil more than wheat. It is also worthy of consideration, that hilly lands subject to wash, are more injured in general by crops that require hoeing, or other constant tilth, than grain crops that are only cultivated for seeding.

Mr. Jefferson's comparative estimate of the expense and profit of a hogshead of tobacco and a hundred bushels of wheat, seems to rest on very vague and insufficient *data*. Wheat being much heavier in proportion to its value than tobacco—the relative value of each must be greatly influenced by its distance from market, and wheat when got ready for delivery, is subject to more casualties than tobacco, which may be kept over from year to year—while wheat is subject to many injuries from the weevil, &c., and is constantly suffering in quality, and diminishing in quantity, if not speedily converted into flour. With regard to to the greater severity of labor for a crop of tobacco, there may be some room for doubt. It is difficult to draw an exact comparison, but I incline to the opinion of Mr. Young, that Mr. Jefferson is mistaken. The culture of tobacco requires more skill and more incessant care than that of

*De l'Administration Provinciale par M. le Trone. Tom. 1. p. 267.

†Notes on the State of Virginia, page 271.

wheat, and perhaps more than that of any other agricultural product of this country; but I think the labor of a wheat crop the most severe. A much greater proportion of women and boys can be usefully employed in making a crop of tobacco, than one of wheat.

Mr. Young's inferences from this passage in Mr. Jefferson's notes, are certainly very unfavorable to the agriculture of Virginia, and I am afraid not altogether unjust. The subject is one of great moment to the cultivators of middle and lower Virginia. I trust, however, that as the exhaustion of our soil has been owing to particular circumstances necessarily attending our husbandry, his prediction that it is to be ruined by the cultivation of wheat will not be realized.

In clearing and cultivating our lands, when a large proportion of our most fertile soils were clothed with their native woods, and might be bought at very low prices, the most natural, I will not say the most proper course, would be, as it generally was, to cultivate the cleared lands as long, and perhaps longer than they would pay the expense of cultivation—and to go on from year to year clearing fresh lands and subjecting them to the same process of cultivation and exhaustion: and in this way the gross annual products were not diminished, while the land was growing worse. This course of husbandry might long since have worked its own cure, and forced upon us a more improving system; but the immense extent of fertile and unoccupied lands in our western country opened a new field to industry and enterprise, and thus individuals who had exhausted their lands in Virginia by severe cropping, with a moderate share of prudence and industry, were generally improved in their circumstances by migration, while the soil of Virginia was becoming more exhausted. One circumstance has checked, in some degree, this tide of emigration. The higher prices we are able to realize from our crops, by our being so much nearer to good markets. But for this, I apprehend that our population, which has been in general regularly increased, would have been in a rapid course of diminution. With this advantage, which we are likely to retain for a long period of time, I am persuaded that our more fertile soils, and even those that are much exhausted, if the means of improvement are within reach, may yield a very fair return for the skill and industry employed in their cultivation. The culture of tobacco has gradually given place to that of wheat, as fresh lands have become scarce, and the facility of getting crops to market in the country above tide-water, increased. Agreeing fully in opinion with Mr. Young that wheat is a most exhausting crop, I think we should gain little by this change if we were not able to counteract its effects, by connecting with the cultivation of wheat, that of clover—a plant invaluable for its fertilizing qualities, and peculiarly suited to corn in the same rotation for wheat. It has long been cultivated most successfully on our fertile wheat soils; and I have no idea that those which have been worried by severe cropping can ever be restored without it; but this blessing of providence will have been bestowed on us in vain if we want the care or skill to turn it to account. It is true that some of our most fertile alluvial soils will produce heavy crops of clover without assistance—a good crop can be obtained on lands inferior to these, but such as may be denominated as fertile and in good heart, by the aid of plaster; but clover seeded on soils that have been worried by severe cultivation will never produce a heavy crop without the assistance of lime, marl, or a heavy dressing of manure—and even when such a crop is obtained, a succession of grain crops will soon reduce the soil to its former condition. I have never thought so meanly of our Virginia husbandry, so far as relates to our *annual crops*, as most others; on the contrary, I believe the management of our tobacco from the time the seed is sown till it is ready for market, is generally excellent. Our wheat crops on our most fertile soils, where wheat is the principal object of cultivation, are in very many instances, managed in a way that would not be discreditable in any country; and the culture of Indian corn is no where better understood or, more skilfully conducted. Indeed I have often thought it too good for the land on which it was bestowed. I wish I could extend my praise farther; but I think in the collection and application of manures, the foundation of all good husbandry, too many of us are lamentably deficient. I have no right to set my opinion above that of others, who are as capable at least as myself of forming a correct one—and I am not at all disposed to enter into the controversies that have been carried on in your Register with regard to the three-shift, four-shift, and five-shift rotations; one may be preferable to the other, according to the character of the soils to which they are applied; with good management, all and each of them may succeed, but except on lands of extraordinary fertility, I am persuaded that in the course of time, and that not a long one, without the aid of manures, they must all fail. Let us take for example, the four course rotation of clover, wheat, corn, and wheat. If the crop of clover has been a fair one, and it has been turned in, or even cut and carried off, if the growth has been luxuriant, a good crop of wheat may be expected after it. The succeeding crop of corn will require all the manure that can be collected for it. If well manured, the product in a favorable season will be large, and the crop of wheat following it through, in a general way, inferior to that sown on the clover ley may still be good—and if it receives, at or after seeding, throughout, or on such parts as most require it, a top-dressing of manure, the clover sown on the wheat will hardly fail if the season be favorable—certainly not where the top-dressing has been properly applied, and in this way the fertility of the soil may be kept up, or even increased—but leave out the manuring, and the land will sooner or later, according to its degree of fertility, be reduced to the condition which Mr. Young anticipates. Plaster applied to the clover will aid manure, but cannot answer as a substitute for it. Marl and lime are without comparison more beneficial than plaster, as they improve the soil itself, while plaster only acts on the crop. In the lower country, where marl or shell lime can be easily obtained, the task of improvement is comparatively easy; but you will agree with me that their operation is greatly aided by animal and vegetable manures. Holding these opinions, I have observed with regret that some of your intelligent correspondents, I think most of them, seem to have a great antipathy to live stock. While I agree with them that close pasturing on arable lands is very injurious to the crops; and thinking as

I do, that neither our soil, climate, nor local situation are suited to raising large herds of cattle with a view to direct profit, I would, with a view to obtaining such supplies of manure as are indispensable for good husbandry, keep as large a stock of cattle as could be well kept through the winter on the long forage and offal of the plantation, and be maintained in summer on standing pastures; and I should deem it no sacrifice, if it were necessary, to circumscribe, in a moderate degree, the limits of my arable fields for this object, in the attainment of which I should gain another of no trivial importance—that of improving the sustenance, and adding to the comfort of my laborers and their families.

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SOILS AND AGRICULTURAL ADVANTAGES OF THE FLORIDAS.—No. 4.

To the Editor of the Farmers' Register.

Plantation Wascissa, 10*th Nov.*, 1835.

The sectional advancement of the middle districts, in wealth and pupulation, above the other districts of Florida, arising from her agricultural success, especially invites an examination of her soils and local advantages.

In my previous letters, I have spoken highly of the rich and alluvial lands to be found in the east; and lest, in now extolling the soils of the middle district, any discrepancy should appear to others in this equal commendation of lands, distinct in character and capabilities, I will at once expose my opinion of the characteristic advantages of each, as calculated to avail the emigrant in his selection of location.

There are choice lands composed of the best soils to be had throughout both these adjacent sections; and when I admit the greater richness and *durability* of the arable swamps of the east, over any soil to be found in the middle district, I claim at the same time for the latter, the greater advantage of a *versatility of soil and climate*, suitable for rotatory crops, which is not obtainable in the former.

To the capitalist, desirous alone of a profitable estate, and indifferent to the reputation and comforts of a farmer, who has the pecuniary ability of establishing suitable buildings and machinery, with the additional means of employing high salaried agents during his requisite annual sojourn of summer at the north, I unhesitatingly recommend the alluvial sugar lands of the peninsula. There can be no estate so profitable as a well regulated sugar plantation, and few lands are more adapted for its success than the above; but that is their limit. The eastern sugar planter must "*stick to his last:*" neither his soil nor climate admit rotation or variety of crop. He can have neither farm-yard luxuries, nor "many fields of variegated green," and is entirely without that diversity of occupation, which renders farming so fascinating. The autumn is his only harvest time—the sole exciting period of his labor—the summer, to escape ennui and biliary attacks, is passed in travel! Thus, whilst I appreciate the superiority of the soil, as suitable for the most productive of plants, I candidly allow that their settlement and successful cultivation, in prudence, can only be established by the *capitalist*.

On the other hand, to the *practical farmer*, limited in capital, but rich in industry, desirous of having neither idle time nor idle expenses, and equally ambitious of securing within himself the *provender of his household*, as well as remunerating crops—I urgently advise the undulating woodlands and fertile soils of the middle district. His crops may not be as valuable as those of the eastern planter—his soils less durable, and his fortune may accrue more slowly. But under a safe climate, with his domestic comforts around him, and in the continued vocation of his farm—increased by every variety of crop, in endless rotation; he has no cause of envious solicitude: for though gathering riches slowly, he is annually reaping the larger harvest of comfort and contentment. Thus, I neutralize the advantages of these distinct sections of Florida: the east is the district for *wealthy plantations*—the middle, for *frugal farms*. I now proceed to the examination of the lands of the latter.

It would be tedious to detail each and every variety of soil to be found throughout the several extensive countries, comprising the middle district; for every object of these letters, their characteristics are sufficiently similar, to be considered in description, essentially the same; and though I admit that in some countries a larger proportion of good lands are to be had than in others, I yet hold it indisputable, that the good lands of all, are composed of the same earth, possessed of the same capabilities, and known, provincially, under the same name.

The face of this section of Florida, is correctly expressed in the term "rolling"—being for the most part undulating hills and planes; and in its primitive appearance, before the axe of civilization mutilated its forests, must have been extremely picturesque and scenic. It still fascinates in woodland variety; though, for culture, the land in some places, is abrupt in declivities, and barren in its growth.

The *genera* of the soil are lime and clay, and are varied in productiveness in the different countries, by the admixture of more or less sand. The great *fault* indeed of the land throughout the territory, is the *predominance of sand*. As the general character of the *best soils* in this district, it may be thus described:—1st—*putrescent vegetable matter* (formed by the annual deposite of forest leaves and decaying trees,) mixed in variable quantity with argillaceous earth, from four to ten inches. 2d—a *secondary* soil of *yellow sandy clay* combined with magnesian earth, lime, or *sulphate of potash*; varying in depth from one to three feet. 3d—*alluvial clay*, in all its varieties of red, yellow and white—tenacious and plastic; oftentimes based on limestone, and sand and shells; extends from three to fifteen feet and more; growth of the above heterogeneous, but chiefly white oak, dog wood, poplar, tulip, with wild grape, and other undergrowth.

Such is the general formation of our fertile lands; and I may now state the *variety* of soils (here common) under their provincial nomenclature, in the order in which they are for durability estimated. 1st—dogwood hammock. 2d—low or cane hammock. 3d—oak and hickory upland. 4th—pine and hickory. 5th—gray or mulatto hammock. 6th—black-jack and pine. The term "hammock" so frequently here in use, does not

seem to have any special or conclusive definition. I have heard it, by good farmers long resident in Florida, applied as well to high and dry lands as by others, to most aquatic soils. I may probably convey a sufficiently correct conception of its general application, in saying—that any rich arable soil covered with a dense, mixed, native forest and strong undergrowth, is so termed; seemingly in contradistinction to the open oak and hickory and pine lands. The species of "hammock" is taken either from its color of soil, as the "gray hammock," or from the prevailing growth—as the "dogwood hammock."

This long enunciation of soils exhibits in itself a great hypothetical cause of the early settlement, and increased prosperity of the middle district. The emigrant, whether desirous of cultivating cotton, rice, tobacco, or grain, or of breeding cattle, at once found before him, the land best suited to his wants—and all equally alluring in verdant pasturage, fertile forests and well furnished springs! The good lands are consequently mostly all "entered:" though large tracts are held still by individuals in the market, and at rates *cheaper than any other land, of similar quality, in the southern country.* They can be bought at from $10 to $12 per acre, and are in no ways inferior to lands now selling in Alabama at $25! Fifteen hundred lbs. raw cotton can easily be harvested from each acre by an industrious farmer; and the country affords the most intelligent society, with every wished for banking and moneyed facility. Fifteen acres of land for every effective laborer, is the usual *pitch* of our crop—that is, ten acres of cotton, and five of corn, besides grain, potatoes, &c. Some thriving planters exceed this. The cotton crop has never failed in Florida; and in many instances have planters made more than they could save. The crop of the present year will, notwithstanding the early and unprecedented frost, nearly double that of 1834. Most of our planters are reaping unusual returns; and as it is only by individual success that I can convince those abroad of our well doing, I trust the following gentlemen will pardon the publicity I give their names.

It will hardly be accredited in your state, Mr. Editor, that a planter working only forty servants, can make and house in one crop 450,000 lbs. of fine staple upland cotton, besides 3,000 bushels of corn, and some 20 barrels of sugar and syrup—leaving his crop of oats, rice and potatoes untold!—and yet this is done in *middle Florida*; and to prevent incredulity, I may now (first asking his leave for its publication) state, that the fortunate planter is my respected neighbor, Daniel Bird, Esq. of Jefferson county. The other gentleman referred to, is Col. Robert Gamble, formerly of Virginia, who will this year realize from 65 acres of land, which have been for the last six years under continued cultivation of sugar cane, (the most exhausting of crops,) upwards of seventy bags of cotton. It is these facts which, in showing what is realized, exhibit the strength and richness of our fertile lands. I do not write to mislead, by exaggeration—for I am open to immediate correction; but I feel that the lands of Florida have not been justly estimated above. Let us, however, take the *minimum* of crops on our good and bad soils; this never is less than 600 lbs. of cotton per acre; and when with this, it is remembered, that we raise a sufficiency of sugar and syrup, of rice and tobacco, for our own consumption, and oftentimes for sale; with grain and cattle in superabundance, will it be doubted, that the soils and improved advantages of the middle district, are the producing causes of her sectional prosperity?

The *rumored* unhealthiness of the climate, has perhaps, injured the otherwise fair fame of Florida. If so, it is calumniated. The health of the country districts, for a tropical climate, is not bad. Persons can scarcely expect Norwegian robustness beneath the vertical rays of the sun! Tallahassee, as a city, is undoubtedly sickly during the autumnal months; but even her mortality, appears more alarming to the stranger, than it in reality is—from the regretted fact, that her obituary is mostly made up of northern residents, unacclimated, and who, in their mercantile avocations, imprudently remain upon their first arrival, an autumnal sojourn. Their death, widely reported as "*died in Florida*," appal the emigrant ignorant of circumstances, and wrongly calumniate the health of the whole territory, from the casualties of an ill regulated city! The evidence of the general *salubrity* of the climate, is to be found in the rapid increase by births of the mass of our population, and of negroes; and I will venture to assert, that in three plantations out of every five, in the middle district, the gangs will be found to have increased by births, during the last six years, at the rate of eight to ten per cent. per annum!

I have been better than two years in Florida, and having now concluded the observations, my travel in the territory has permitted me to make upon the general character of the soils, I shall in my next, submit for your approval, the *details* of *trials* which I have made both in sugar and cotton cultivation—the egotism of which I hope will be overlooked, in the consideration, that I only desire that the *comparative* results of those two important crops may practically exhibit to others, not only the advantages of *both*, but also enable them to decide which can be made in middle Florida the most profitable.

FARQ. MACRAE.

CALCAREOUS ROCKS IN MECKLENBURG, PRINCE EDWARD, AND CHESTERFIELD, AND GYPSUM IN CUMBERLAND.

[The following letter was drawn forth by our inquiries respecting specimens of a singular kind of calcareous rock which we had received from Dr. Morton, and had lately examined, for the purpose of ascertaining the amount of their calcareous ingredients. The specimen from Finneywood, Mecklenburg, contained 72 per cent. of carbonate of lime—that from Mr. Branch's farm, in Prince Edward, 65—and one from the land of George Johnson, Esq., Chesterfield, 76 per cent. The latter was obtained from rocks thrown out by freshets, from the bottom of Winterpock creek, a stream which enters the Appomattox about twenty miles above the falls. All these specimens agreed precisely in appearance. The rock was hard, and seemed to have been formed of a mass of small sea shells, mingled with silicious earth. The impressions of the shells were perfect, but all hollow,

their entire substance having been removed. The open, yet hard texture of the rock, made it something like buhr stone, and possibly it might serve to make millstones. Its great hardness will forbid its being used for manure, unless first burnt to lime. But it is rich enough to pay well for that preparation—and its open nature would make a less degree of heat requisite for the purpose. This rock well deserves the trouble of searching for—and though its quantity is yet no where known to be very considerable, its being discovered through so extensive a region, gives new grounds for the hope which we have so often expressed, that the means of using calcareous manures in Virginia will be greatly and profitably extended, far beyond the limits which were formerly supposed to be fixed.]

To the Editor of the Farmers' Register.

Prince Edward, Nov. 20th, 1835.

I have just returned from a laborious professional tour, and have found yours of the the 7th inst. I received this with great joy, considering I could not read it all, and have determined to answer it forthwith, lest my evil genius, *procrastination*, should load my conscience with an additional burden to that which has been so long accumulating. When I was returning from your house I made many resolutions about writing more for the Register than I had done, all of which have been broken. I have, however, written a good deal; but being called off while the pieces were unfinished, they could not stand the ordeal of my own criticism, when I returned. What I write must be completed at a sitting, or it commonly proves an abortion. I know the Register cannot lose much by these, my short-comings; but *I* do. Whenever I write for it, I find my eagerness for farming increases; and I wish that all your subscribers would try the effect of an occasional contribution, as means of their own agricultural improvement.

I regret that I am able to give so little information in relation to the rocks sent you last spring. Those from Finneywood, Mecklenburg, were given me by S. C. Anderson, Esq., of this county, for transmission to you and Professor Rogers. I learned from Mr. Anderson that they were turned up by the plough in large quantities, on a farm called Finneywood, on a creek of the same name, in Mecklenburg; that the soil about them had a black color, and that he was much struck with the promising prospects it held out for improvement. I was informed that most of this calcareous material could easily be crumbled in the fingers, after being moistened. It has been some years since Mr. Anderson procured the specimens. The petrified impressions of shells, obtained from Capt. Branch's, were found lying on the surface on a high hill in the woods; and the bed to which they belonged has not been found. I went to his house to investigate the matter, but neither he nor his sons were at home, and I could get no accurate information regarding the particular locality. I believe that Prof. Dame of Hampden Sydney, on analysis, obtained precisely the same result with yours. While at Capt. Branch's, I found a great deal of clay marl, interspersed with large calcareous nodules, similar to those sent you from my land. This marl may be found at several places in his neighborhood, and at various others through the country. It is usually incumbent on, and sticking to beds of stratified hornblende rock. These beds of hornblende are found about the streams of water, and the slopes leading to them, and give character to the soil of such places by disintegration. The dividing ridges between the streams are usually covered by a much poorer soil, interspersed with quartz rock. The beds of hornblende, however, are doubtless continuous, and penetrate through these ridges at a great depth. They may commonly be found on both sides of the ridges, deposited in the same direction and possessing similar accompaniments.

While on this subject, it may be proper to mention, that the little land which I have dressed with my weak clay marl, and afterwards clovered, presents astonishing marks of improvement, far beyond my most sanguine hopes. Before clovering the fertilizing action of the marl was not so striking.

The calcareous rocks on my land (specimens of which were sent you,) have proved too obdurate for my awkward attempts at calcination. I suppose them to be carboniferous limestone and marlite. There is a large mouldered bank of them—dug up many years ago—which effervesces fiercely on the application of acid. I mean to spread this on the adjacent lands.

I find more gypseous clay on my land than I at first supposed. I do not wish to exhaust this, until I get more land marled, for its application. I have tried a little, and it acts finely after marling. There is on the land of Col. Witson of Cumberland, about four miles from me, and near the Appomattox a stratum of this, which, I would suppose, almost inexhaustible. I suspect it to be the out-running of a large vein of coal. It consists of crystals of selenite, about the size of grains of corn, very closely impacted with an unctuous cream-like matter in the interstices. I see so reason why the best of plaster might not be made by grinding this selenite. If necessary, the intervening clay—very little in quantity—might be washed out in a running stream.

Besides the clay marl interspersed with calcareous nodules, I have found some devoid of these, which would effervesce smartly on admixture with acids. As this marl was lying adjacent to large ledges of feldspar rock, I suspected that its alkali might be potash. Feldspar, however, sometimes contains lime.

A sedulous investigation into matters of this sort might produce important developements.

It is not probable, that for some time to come, manufactories of porcelain will be erected in our state; yet it is proper that some record should be made of the localities in which the materials for making it may be found. Kaolin or porcelain clay is very abundant in this section—but generally of a coarse quality. There is, however, a body of it in the ice house at Ranes' tavern, Cumberland, of fine texture, and white as snow.

W. S. MORTON.

From the last London edition of the "Complete Grazier."

ON THE BREEDING, REARING, AND FATTENING OF SHEEP.

[Continued from p. 469 Vol. III.]

On foreign and British wool.

The importance of the woollen manufacture, both to the commercial and laboring classes of this nation, has long been felt; yet it is only within the last forty years that the subject has been scientifically considered, or any efficient measures have been taken in order to improve the quantity and quality of British wool.

As the extent of the present work will not admit of a detailed account of prejudices which are now daily disappearing, we propose, in the present chapter, only to state the essential properties of wool, and concisely to notice the improvements already made, together with those means which experience and reason evince to be the best calculated for that purpose.

The growth of wool is always completed in one year, at the expiration of which it spontaneously decays, and is naturally renewed. In this respect, indeed, the covering of sheep bears a close resemblance to the hair of most other animals; though it differs widely in the following particulars: wool is considerably finer, grows more uniformly, each filament growing at equal distances, and separating nearly at the same time from the skin; and, if not shorn in time, naturally falling off, being succeeded annually by a short coat of young wool. Another peculiarity in wool is, the different degree of thickness which prevails in various parts of the same sheep, being closer at the extremities or points than at the roots, and the part that grows during the winter being of a much finer quality than that produced in the summer.

Various are the names given to wool, according to its state or relative degree of fineness. When first shorn, it is termed a *fleece;* and every fleece is usually divided into three kinds, viz. the *prime*, or *mother-wool*, which is separated from the neck and back; the *seconds*, or that obtained from the tails and legs; and the *thirds*, which is taken from the breast and beneath the belly. This general classification of wool corresponds with the Spanish method of sorting into *Rafinos*, or prime; *Finos*, or second best; and *Terceras*, third, or inferior sort; the initial letters of which words are usually marked upon the bags when it is exported: but the wool-staplers in this country distinguish not less than nine different sorts that are broken out of small fleeces, the names given to which prove the nice discernment of the persons employed; we therefore subjoin them for the information of our less informed readers.

No. 1. Is *Short-coarse;* and very descriptive of its character.

2. *Livery,* } old sorts, into which the fleece
3. *Abb,* } was formerly divided.

4. *Second.*—Probably a second or better *abb*, and the first alteration in the mode of sorting; which arose either from the improvement of fleeces, or in the art of breaking them. This, and all the subsequent names, seem to have been in regular succession of quality to the top of the list.

5. *Downrights.*

6. *Head*, or *chief.*

7. *Super-head.*—An advance upon the preceding sort.

8. *Picked Lock.*—First made, perhaps, in small quantities.

9. *Choice Lock.*—Still more excellent.

Besides these sorts, there is another recently introduced into the list, and called *Prime Lock;* which, as its name indicates, is the finest that can possibly be obtained; and some have even gone so far as to distinguish *fourteen* different qualities.*

Till within a few years, the finest wool manufactured in this country was obtained exclusively from Spain, and next to Spanish wool, the English sheep, at that period, indisputably furnished the best commodity of the kind in Europe. Previously to the introduction of Spanish sheep, the finest and most esteemed sorts of British short wool were the Ryeland, Dean-Forest, Mendip, South-down, Wiltshire, Shetland, and Cheviot fleeces: but by the judicious crossing of Merino rams with the choice British sheep, particularly of the Ryeland breed, wool, even of the *fourth descent*, has been obtained, which, in point of fineness and texture, has proved nearly equal to the best Spanish. For this improvement, at that time deemed of the highest importance to its agriculture and manufactures, the British nation was indebted to the patriotic exertions of Lord Somerville, of the British Wool Society, the Board of Agriculture, and Dr. Parry, of Bath.† With the same noble views, his Majesty, George III., for many years previous to his illness, annually permitted some of his Spanish sheep to be sold at reasonable prices, under the auspices of Sir Joseph Banks; and, in many instances, allowed them to be used gratuitously.

The expectations thus raised have, however, been disappointed; and the momentary advantage that was gained by these crosses, has been wholly destroyed by the superior quality of the German wools, and the low prices at which they are now imported. The whole evidence before the Committee of the House of Lords, appointed, in 1828, to inquire into the state of the wool trade, goes to prove, that the wools of Bohemia and Saxony have entirely superseded the British short wool in the greater part of our cloth manufacture; and the consequence has been, that the value of the latter has fallen below a remunerating price to the grower. To this alarming fact is to be added

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* The tables inserted in this chapter show the common proportions of the different qualities in a fleece of South-down wool.

† The details of the various experiments, conducted by the different public-spirited individuals above named, being too numerous for insertion, a few only of their general results can be given. Such of our readers as possess leisure and inclination to observe the gradual progress that has been made in this national object, will be amply compensated by a perusal of Lord Somerville's "System, followed by the Board of Agriculture," &c. 8vo. 1800; also his Lordship's "Facts and Observations on Sheep," &c. 8vo. 1803; the second volume of "Communications to the Board of Agriculture;" Dr. Parry's "Facts and Observations on the practicability of producing British Clothing Wool equal to that of Spain;" and the ninth volume of the "Letters and Papers of the Bath and West of England Society."

that of the rapid increase of the fine woolled flocks in New South Wales, which bid fair, at no very remote period, to supply the whole demand of this country.

We shall now proceed to state some of the principal requisites, which are indispensably necessary to constitute good wool. These are:—

1. The *length of the staple;* for this regulates the various fabrics to which the fleece is destined. Thus, in carding wool, a *short pile*, and a disposition to assume a crumpled, or spring-like shape, is an object of prime importance. This shrivelling quality, Mr. Luccock remarks,* cannot prevail in too high a degree, if it be to make cloths requiring a close and smooth surface: but for cloths where a long and even nap is required, too large a proportion of this curling property he conceives would be detrimental; and consequently a *long* pile or staple will be preferable. There is, however, a certain point, beyond which, if the crumpling quality proceeds, the wool becomes less valuable, on account of the superior length of the curves, which render it difficult to break the staple sufficiently. The distribution of the hairs in this staple has been compared to that of the grain in a very crooked piece of timber, or to waved bars of metal, so formed that the convex part of one fits into the concavity of another; and this peculiar property cannot be communicated to wool where it does not naturally exist.

2. *Pliability* of wool is another important quality to which the attention of the grower should be directed; as, without this elasticity, it will be unfit for the purposes of manufacture.

3. The peculiar property, termed the *felting quality*, is of equal importance with the preceding; and, though not evident to the eye, is in fact indispensably requisite in all wools which are wrought up into such cloths as are submitted to the action of the fulling-mill. Mr. Luccock describes it as "a tendency in the pile, when submitted to a moderate heat, combined with moisture, to cohere together, and form a compact and pliable substance."* This valuable property is possessed in a high degree by the Spanish sheep; and, according to Mr. Luccock's opinion, the Cheviot, Morf, and Norfolk fleeces are the best adapted for the purposes of fulling.

4. A *soft pile* is also an essential requisite to constitute a good fleece. In this, as well as in the other properties already enumerated, the Saxon and the New South Wales wools peculiarly excel;† and among the British fleeces, those of Shetland stand unrivalled in this respect.

5. The *specific gravity*, or relative weight of the pile is a quality to which the attention of wool growers has not yet been directed so particularly as the subject requires. In order to ascertain the comparative weight of different samples, Mr. Luccock directs each of them to be brought as nearly as possible to the same degree of purity, to expel all the moisture which wool obstinately retains, and extract all the air contained in the interstices of the staple.‡

6. The *smell* of the wool is not a property to which much weight can attach: provided no disagreeable odors are emitted, or any of the effects of moisture are exhibited, no one scent can be preferable to another.

7. In *color*, it is essential that wool should, as far as possible, be perfectly white.

8. The last property to which the attention of the growers of wool should be directed, is trueness of hair, or a uniform *regularity of pile*, in which no coarse, shaggy hairs are perceptible; as the latter, by reason of their brittle nature, will very materially affect the progress of the manufacturer. Such coarse hairs, as well as *kemps* or *stichel hairs*, (which are generally short, brittle, pointed, opaque, and of a gray or brownish cast,) are found principally in neglected breeds. Since, however, the art of combining the properties of the parent sheep in their offspring has been generally known, the expert grower of wool has been enabled to produce surprising alterations in the relative weight and fineness of the fleece.

In countries where wool is the chief object in the breeding and management of sheep, every other consideration is sacrificed to its improvement; but in England, the carcass is generally of greater importance than the fleece, and the weight of mutton has of late years been more attended to than fineness of wool. In this, the farmer has doubtless found his account; but they are objects which cannot be combined with equal advantage to both; and the consequence has been, that while the size of the principal breeds of our short-woolled sheep, and the weight of the fleece have been gradually increased, a proportionate deterioration has been occasioned in the quality of the wool.

The fact has, indeed, been denied by the breeders; but evidence, entitled to so much confidence as to be apparently conclusive, has been produced before the Committee of the House of Lords, already alluded to, establishing it, generally, beyond the possibility of doubt; as will fully appear from the following tables, selected from the evidence of many eminent wool dealers and manufacturers, and extracted from the Minutes. This, however, cannot apply to the long-woolled breeds, which in point of profit to the grazier, and of national value, rank among the very first. The length of the fleece not only gives a large weight, but the strength of the staple, and even its coarseness, are materially serviceable in the manufacture of carpetting and blankets.

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*In his valuable treatise on "The Nature and Properties of Wool," p. 147.

†Treatise on Wool, p. 161.

‡ See page 285.

* Treatise on Wool, p. 173.

PARTICULARS OF SOUTH-DOWN WOOLS ASSORTED BY W. AND J. CUNNINGTON, UPAVON, NEAR PEWSEY, WILTS.

				List.	Warp.	Abb.	Downhts.	Head.	Super.	Choice.	Prime.	Pick.
	Devenish:											
1823	- - -	3,974	Ro	110	209	353	369	658	611	800	848	16
1827	- - -	3,754	R	96	93	397	374	758	956	636	444	—
	Dowden, &c.											
1823	- - -	2,874	Ro	92	137	215	190	427	345	400	967	101
1827	- - -	2,705		60	182	255	186	513	622	473	421	43
	Whitchurch:											
1824	- - -	10,405	Rb	433	495	1,099	1,178	2,030	1,647	1,644	1,799	80
1827	- - -	10,550	N	366	358	1,179	1,036	2,599	2,756	1,552	687	17
	Wensbro:											
1815	- - -	1,006		5	70	43	20	36	77	197	498	60
1827	- - -	1,419		10	70	110	90	247	293	310	289	none.
	Saph:											
1815	- - -	932		6	59	29	16	19	41	207	497	58
1827	- - -	1,236		20	50	107	85	200	256	358	246	4
	Tuckwell:											
1815	- - -	28,492		38	242	130	67	89	271	719	1,244	50
1827	- - -	2,787		48	150	238	220	463	486	544	638	none.
	Dean:											
1815	- - -	2,478	21	21	209	95	69	91	193	465	1,253	82
1827	- - -	2,611	N	64	115	190	200	384	399	444	786	29
	Powell:											
1815	- - -	1,750		7	112	64	40	67	148	347	875	90
1827	- - -	2,184		52	55	218	94	376	273	411	705	none.

A STATEMENT, SHOWING THE COMPARATIVE WEIGHT OF THE DIFFERENT SORTS PRODUCED FROM (15 TODS) 420 POUNDS OF CLOTHING WOOL GROWN IN NORFOLK, BY MR. JAMES FISON, WOOL DEALER, OF THETFORD, NORFOLK.

	1793	1808 and 1809	1818 and 1819	1827 and 1828	Prices of Sorts in 1828.
	lbs.	lbs.	lbs.	lbs.	s. d.
Prime	200	144	56	14	1 3 per lb.
Choice, and Choice Grey	96	80	48	24	1 0 "
Super and Middle Grey	64	80	96	56	0 10½ "
Head, Downright, and Third Grey	52	104	168	152	Head 0 10 " Downrights 0 9½ " Third Grey 0 8 "
Seconds, &c. included in 1793, 1808, and 1809					
Seconds			20	80	0 9 "
Abb			10	48	0 7½ "
Britch, &c.			2	6	0 5 "
Livery			8	24	0 6¼ "
Waste	8	12	12	16	
	420	420	420	420	

Calculating the weight of sorts produced at each of the above named periods at the present prices of sorts, the result will show, that if our clothing wool were equal in quality—

To the growth of 1793 - - - it would now make 12½d. per lb.
If equal to the growth of 1808 and 1809 - - - - 11¾d. "
If equal to the growth of 1818 and 1819 - - - - 10¼d. "
Actual value in 1827 and 1828 - - - - 8¾d. "

It thus appears that the difference in quality between 1793 and 1827 is equal to 3¾d. per pound.

Although these tables only apply to particular districts, yet they corroborate the unanimous assertion of the manufacturers, that British short wool has generally degenerated in quality, while the increase of weight also appears from the following account, produced by Mr. C. Bull, wool stapler, of Lewes:—

STATEMENT OF THE RESPECTIVE WEIGHTS OF FIVE TODS OF WOOL, THE PRODUCE OF DIFFERENT FARMS, AT DIFFERENT PERIODS, BETWEEN THE YEARS 1803 AND 1827, INCLUSIVE.

Average of	Year.	Number of Fleeces.	Tods of 32 lbs.		Fleeces per Tod.
			Tods.	lbs.	
Produce, No. 1.	1803	869	58	7	15
do	1804	864	50	28	17 1-4
do	1806	923	65	24	14
do	1807	808	68	26	11 3-4
do	1815	866	57	14	15
do	1816	875	67		13
do	1817	915	75	12	12
do	1825	778	63	8	12 1-2
do	1826	835	72		11 1-2
do	1827	824	69	4	11 3-4
Produce, No. 2.	1804	1,191	75	5	15 3-4
do	1805	1,227	89	10	13 3-4
do	1806	1,165	90	22	12 3-4
do	1807	1.248	105	18	11 3-4
do	1808	1,338	105	10	12 1-2
do	1822	1,348	125	20	10 3-4
do	1826	1,189	105	17	11 1-4
Produce, No. 3.	1804	658	40	14	16 1-4
do	1805	574	45		12 3-4
do	1806	572	42	16	13 1-2
do	1807	551	41	13	13 1-4
do	1808	650	45	18	14 1-4
do	1822	655	58	11	11 1-4
Produce, No. 4.	1804	1,306	83		15 3-4
do	1814	1,370	110	29	12 1-4
do	1815	I,350	104		12 3-4
do	1826	1,160	106	14	11
do	1827	1,210	115	3	10 1-2
Produce, No. 5.	1806	1,209	87	22	13 3-4
do	1822	1,195	96	23	12 1-4
do	1823	1,147	96	7	12

There are still, no doubt, some Down-land flocks, in which the original quality of the wool has been sustained;* and others in which it has been even improved by crosses with foreign sheep; but, wherever the now almost universal system of feeding on artificial grasses and roots, and fattening at an early age, has been introduced, the deterioration is, with very few exceptions, evident. It is therefore clear, that high feeding is incompatible with the production of fine wool; and the farmer will henceforward find it most prudent to make his election of the breed he means to adopt, with a view to one object alone. That this has been already done, to a very great extent, appears from the large increase which is supposed to have been made within the last thirty years, in the heavy long-woolled sheep, while the lighter carcassed short-woolled breeds have diminished.

According to Mr. Luccock's tables, published in 1805, and to the calculations of the Wool Committee at Leeds, presented to the House of Lords in 1828, the number of packs of wool of the several qualities at the respective periods, have been estimated as follows:

1800, short-wool	193,475	1800, long-wool	131,794
1828, do	120,655	1828, do	263,847
Decrease	72,820	Increase	132,053

The preference which thus appears to have been given to the long-woolled breeds, has not, however, wholly arisen from the superior profit to be obtained from the carcass; but from British short wool having been to a great extent thrown out of our cloth manufactures, while an increased

* The evidence of Mr Ellman, of Glynde, is to that effect; and shows also that the weight of fleece of his own flock has diminished about six ounces since 1817.

demand has arisen for the combing quality. The relative value of the fleece has thus changed: both the wool and the carcass of the heavy sheep, now severally produce the most money; and it has therefore become the interest of the farmer to breed them whenever his land will allow it.

It is impossible to read the evidence produced before the Committee of the House of Lords, without being convinced, that even if the quality of British wool had not degenerated, it would still have been superseded by the superior value of the foreign wool for most manufacturing purposes. The softness and felting properties of the latter, are stated by the concurrent testimony of all manufacturers who were examined, to be of such advantage in making fine cloth, that it would still continue to be used, even if the duty, which was lately repealed, were continued. Nothing, in short, but an absolute prohibition, can prevent its consumption; while the effect of that, or even of a continuation of the former duty, would unquestionably be to deprive us of the export trade. It appears, also, that by the admission of foreign wool into our manufactures, much of the British growth is brought into use by being mixed with it. Under these circumstancos, it is hardly to be expected that the legislature will impose any further impediment to the importation of the foreign wool; and a dispassionate review of them must render it more than doubtful, whether, even were the prayer of the wool-growers granted, it would afford them the desired relief.

The quantity of foreign wool consumed in our manufactories, is supposed to be about 25,000,000 lbs. annually; of which the greater proportion is German; yet the importations are stated to consist principally of inferior and middling descriptions, though there can be little doubt that the best qualities grown, are sent to the English market. The proportions, if divided into parts, and the current value in 1828, were stated to the Committee of the House of Lords, as follows:—

			s.	d.		s.	d.
Saxon wool, 20 parts	2	from	6	6	to	7	6
	6	"	3	6	"	4	6
	6	"	2	3	"	2	6
	6	"	1	8	"	2	6
Austrian, or Bohemian wool, 30 parts	5	"	4	6	"	6	6
	10	"	2	3	"	2	9
	15	"	1	6	"	2	0

And the general average was calculated at 2s. 4d. per pound.

Spanish wool is imported in about equal proportions; and that from New South Wales is considered to average 9d. to 1s. 6d. for three-fourths, and the remainder from 1s. 6d. to 2s. 6d. per pound.*

The quantity of each of the above kinds, imported in the year 1827, was as follows:—

	lbs.
German	21,220,788
Spanish	3,898,006
Australian	512,758

And from Russia, and various other countries, different parcels, amounting altogether to 29,122,447 lbs.

The above importation from New South Wales, appears of very trifling importance; but it amounted to more than double that quantity in the preceding year; and the breeders in that country are making rapid strides both in the increase of their flocks, and in the improvement of the fleece. The Australian Agricultural Company are already in possession of 12,000 fine-woolled sheep; the Van Dieman's Land Company are making similar exertions; and many individuals of enterprise and capital have embarked in the speculation of growing wool for the supply of the English market. The wool produced in that climate, acquires a remarkable degree of softness, superior to that of any other kind. This has been proved by the comparison of fleeces shorn in England, from sheep which were afterwards sent out to New South Wales, with fleeces from the same sheep, shorn twelve months after their arrival, and sent there to ascertain the fact; and cloth of the finest quality that has ever been manufactured in this country has already been made from it.*

With such advantages, and with an unlimited range of pasturage, to an unknown extent, it is no extravagant speculation to calculate that, at no very distant period, we shall receive our largest supplies of fine wool from thosesettlements.

* Minutes of Evidence, &c. p. 279.

From the Maine Farmer.

MAKING MANURE.

Mr. Editor—A year ago last June I carted into my barn-yard about fifty loads of muck or mud turf, and loam. I dug it over a number of times during the season, with a hoe fork, yarding my cattle during the night time, and when I carted it out the succeeding autumn, it was "all of a color," black as animal manure itself, and I have not the least doubt that the materials I made use of to increase my manure were equally as good, after lying in the barn-yard a few months, as dung from the stable. I did not keep an exact account of the expense of carting the same, but I should think that one man with a yoke of oxen and cart would easily haul ten loads per day. At most it did not cost me more than one week's labor of one man and a yoke of oxen to haul fifty loads, which quite doubled the quantity of my manure, and by keeping the animal manure covered as much as possible with loam, &c. prevented much of its virtue from escaping into the atmosphere. After clearing out my manure the last autumn, I carted into my barn-yard forty loads of loam (common dirt) from banks and other places where there were but few stones, and spread it evenly over the yard, with this exception, my yard slopes a little wrong, which, when great rains happen, lets off much liquid manure, the most part of which is lost, (and I have not yet had "time" to fix my yard, which, should slope from every part towards the centre,) so I formed a little dam across the lower side to prevent the virtues of the manure from escaping.

*Minutes of Evidence, &c. *passim*.

The first of June last I also carted into my barn-yard 20 or 25 loads of loam, and spread it evenly over the surface—(this should be done immediately after ground is thawed in spring, as the sun, wind and rains are busy agents employed in sucking the virtues of barn-yard manure,)—and the present autumn, be it known, the loam has all become of a dark color, insomuch that it would be taken for stable dung. Every farmer has not an inexhaustible supply of muck, but every one can get common dirt, which I think is as good as any substance whatever to place on the bottom of a barn-yard. Some will say their ground is full of stones—then pick them out and haul them to some waste place out of the way if you will. I have carted upland loam, containing many stones, into my barn-yard, and with a common breaking up hoe dug over each load and carefully picked them out. An active man will hoe over a load of loam and pick out the stones in a very few minutes. Let no man living say he has not materials for increasing his manure. Every farmer can get dirt to bank up his cellar—so every farmer can get dirt if he will, and make excellent manure of it. Never did providence lavish on mortals a richer gift than is contained in our swamps—in pond holes on the margin of brooks—in sunken places, &c. Why will not enterprise put forth her hand and improve these golden privileges? When science shall have more fully illuminated the farmers of Maine, these inestimable treasures will be eagerly sought. When enterprise and energy shall take the place of that monster, prejudice—then indeed will our farmers make an abundance of manure. "The attention paid to manure in any country indicates with certainty the state of its agriculture," said a great agriculturist. What then shall we say of the agriculture of the state of Maine, if the attention paid to manure is the criterion of good or bad husbandry? Indeed, I think agriculture is very much improving in our state, and many worthy citizens may be found among us who well deserve the name "good farmers," but as often as we find one farmer who makes exertions to increase his manure by artificial means, how many may be found who pay no attention at all to the making of manure, if the facts could be known. Any one feeling a good degree of "state pride" would be unwilling to have the story told in Gath, or published in the streets of Askelon. I have not time, nor capacity, Mr. Editor, to do any thing like justice to the important subject of manure, but I thought that to throw out a few hints at this time might do no harm, and it might possibly be the means of doing a little good—and if by writing these few hints a single farmer should be prevailed on to haul a few loads of loam, muck or turf into his barn-yard, that would not have done it supposing these hints had not been written, it will be a sufficient remuneration for my trouble and time. As soon as I can get time, if circumstances are favorable, I will tell another story about ruta baga, and perhaps patatoes.

J. E. R.

Rumford, October, 1835.

From Kenrick's New American Orchardist, 2nd ed.(1835.)ti

ON THE DECLINE OF OLD VARIETIES OF FRUITS, AND THE PRODUCTION OF NEW.

The decline of many of the most valuable old varieties of fruit, has been noticed by several distinguished writers of different countries, both of the present and of the former ages; and in England, particularly, by the celebrated Thomas A. Knight. In our country, and in the vicinity of Boston, it has been more especially observed in regard to the old pears. For our best varieties of apples, and some other species, are mostly native fruits, or of modern origin.

Let no one suppose that the intelligent horticulturists here, have never been acquainted with the best of the old pears, which the intelligence and industry of ages had concentrated in France. Who is not aware that in every good collection, a proportion of the very best are *always sent*? How opposed alike to reason and to probability is the supposition, that even one of the best should have escaped? They must have been here received, in the numerous and ever varying *selections*, in the unnumbered importations.

Rozier, in the original edition of his celebrated Dictionary of Agriculture, which was completed in 1801, has candidly informed us, that for his description of fruits, he is almost wholly indebted to the no less celebrated Duhamel Dumonceau; and from the whole list of pears which he has described, he has recommended as their essence, for a moderate collection, fifty-three trees, of nineteen varieties, in different proportions. These are every one of them known among us; and more than half of them, including the very best, are decidedly of the kinds long since, from their defection, proscribed by those who cultivate for the markets of Boston. And of the list of twelve trees, of nine varieties, which he has recommended as the best of all, for a very small garden, three quarters of them, at least, are of the kinds which have long since ceased to produce perfect fruit, with those who cultivate for our markets.

We regret the circumstance, but have ceased to wonder at the cause—since the same complaints of defection have already reached us from other quarters—even from the capital of that country, for which those celebrated works were principally designed.

I shall, in the following pages, designate some of those, in the class of old varieties, once the finest of all old pears, whose duration we had hoped, but in vain, to perpetuate. For except in certain sections of the city, and some very few solitary and highly favored situations in the country around, they have become either so uncertain in their bearing—so barren—so unproductive—or so miserably blighted—so mortally diseased—that they are no longer to be trusted; they are no longer what they were once with us, and what many of them are still described to be by most foreign writers.

The gentleman who prepared the article on fruits in *Fessenden's New American Gardener*, has warned us to beware respecting some of them. He is well known with us as first rate authority.

In the markets of the city which formerly abounded with them, they are no longer, or but rarely, to be seen. The cultivators who furnish

its supplies have given up their cultivation. Like the barren fig-tree they have been destroyed—but not without cause; for if they had not been accursed, their fertility and good qualities were gone; and they were no longer fruitful, but as the sources of vexation.

The practiee of renaming those new, or unknown varieties, whose original names are lost, after these old kinds, is objectionable, inasmuch as it is calculated to mislead—and to falsify the proofs of their mortality. From some fancied similitude, the barbarous names of antiquity are brought down upon us, applied to existing varieties. From semblance of name alone, the Gergon, or Jargon of antiquity has reappeared—it has been reclaimed, not merely as kindred, but as in all probability *identical* with varieties still existing.*

According to the theory advanced by Mr. Knight and others, and confirmed by their experience, the different varieties of fruit have their periods of existence fixed by the immutable laws of nature; and after a certain time, either sooner or later, comes on their decline and final extinction.

I shall offer some evidence to show that the complaints of defection are not confined to us alone—they have reached us from other and remote quarters. Bosc, in Nouv. Cours Complet, has asserted the change—that in France many of the kinds have become, from some cause, so altered in the short space of half a century, that it is sometimes difficult to know them, even in the exact descriptions and precise engravings of Duhamel; and with regard to many kinds described by Quinfinie, the case is still worse. In the markets of fruits and legumes at Paris, as the commissaire general has informed us in his report for 1828, some of these same ancient, and with us once celebrated kinds, are no longer cultivated, even with them. He expresses astonishment at the *cause*—but the conclusion seems irresistible, that with them as with us, they are no longer worthy of cultivation; and that out of that city, and in its vicinity, the country around, these once famous fruits are at this day as liable to blight, and as unworthy of general cultivation as in the neighborhood of Boston.

The following are his words, extracted from his report: "one is astonished on viewing in the markets of Paris so very few melting Pears. We no longer see the *Sucre Vert, the Sucre Musqué, the Bezi de la Motte, nor the Bezi d'Airy* [*Bezi d'Heri?*] *very few Chaumontelles, very few Culotte de Suisse; no Royale d'Hiver* [Royal Winter,] *no Virgouleuse, and what is to be deplored, no Colmars.* [Some of these expressions, it seems evident from what follows, were designed to be understood only in a general sense. K.] These three last species sell from ten sous to two francs each, [about forty cents] and their cultivation is neglected!

"The Rousselette, so perfumed, so sought after by the confectioners, and distillers, is no longer of good quality.

How different this Rousselette from that which they cultivate at the hamlet of Cormontreuil, at the gate of Rheims! At that place they cultivate the Rousselette almost exclusively, and these altogether on espaliers. These espaliers offer at the end of August a sight the most rich and beautiful." See Annales d'Horticulture for 1828.

The unwearied efforts of the most distinguished cultivators of France, during the latter ages, in their attempts to raise new and valuable varieties of fruits from the seed, appear to have been accompanied chiefly with disaster. And M. Poiteau in one of his reports to the Horticultural Society of Paris, has asserted that the result of all their labor has been "*absolutely nothing.*" In adverting to the decline of the old French varieties of pears, in the vicinity of Paris, and the necessity of a renewal, he asserts that they must look elsewhere for new varieties to replace the old—*any where else but to their own country.*

He informs us that the celebrated Duhamel, during the long course of his scientific career, planted the seeds of all the best fruits which were eaten at his table, without being able to produce a single fruit worthy of cultivation. Others in that country—as the Alfroys, had during three successive generations, adopted the same course, and with no better success.

Their practice had been to plant uniformly, the seeds, only of the very best or ameliorated fruits—and to select from these, as the subjects of their experiments, those young plants only, which were furnished with large leaves, and large and fine wood. M. Poiteau ascribes the disastrous results of their experiments to these combined causes, and further states it as a fact recorded by several authors, that the seeds of the Winter Bon Chrétien always produce a detestable fruit. Mr. Knight has asserted that the seed of the *Wild Pear* fertilized by the stamens of the blossom of an ameliorated one, will yield a better fruit than the seeds of an *ameliorated pear.*

M. Van Mons has stated that "the Belgians give *no preference* to the seeds of table fruits, when they plant to obtain new ameliorated kinds." Those seedlings which are without thorns, and with stout wood, and large leaves, are by them rejected, as these are the signs of an early or inferior fruit. M. Van Mons ascribes the success of their experiments in obtaining so many fruits, which are in all respects so extraordinary, to the principle which they had adopted in the beginning—that in proportion as a fruit becomes removed from the wild state, or state of nature, by repeated regeneration, or planting always the kernels or stones of the last production, in that same degree will the fruit become ameliorated, until it attains the highest perfection of which a fruit is susceptible.

During the process of the amelioration, and of each successive remove, the austerity, or superabundant acid, which is the peculiar characteristic of the wild fruit, is diminished, and the saccharine matter is increased. But as a certain quantity of acid is an essential ingredient in every perfect fruit—it will appear self-evident that the process of regeneration, when carried too far, may prove

* See t. 108 of the Pomological Magazine, where the authority of Menage and Duchat, and of Merlet are brought forward to justify the supposition, that the Jargonelle, asserted by them to be derived from Jargon, anciently Gergon, in Italian *Gergo*, in Spanish *Gericona*, all corruptions of *Græcum*, and by the inference of Merlet the *Pyrum Tarentinum* of Cato and Columella, the *Numidianum Græcum* of Pliny, the *Græculum* of Macrobius; that all these, named or described near two thousand years ago, are but one and the same; and no other than the Jargonelle of the present day.

injurious; and that excessive sweetness, by a short transition, degenerates into insipidity.

It is asserted by Mr. Knight, that generally, the old varieties of fruit begin to decay, first, in the colder latitudes; and that a fruit which there begins to decay, may yet be successfully cultivated in a more southern climate, or, what is equivalent, in the confined and warmer atmosphere of cities. Those varieties, therefore, which no longer succeed with us, may yet continue for a while to flourish in the middle regions of the Union, and especially in the interior, beyond the limits and influence of those cold eastern breezes from the Atlantic, which, rising with the diurnal appearance of the sun, visit us so regularly and constantly at stated seasons.

There are some, however, who dissent from these opinions and conclusions—opinions, which, the continued experience of the ages, present as well as past, seems only the more abundantly to confirm. They do not, indeed, deny the *fact* of the destruction; but they *deny the cause*. In their attempts to sustain the credit of the old fruits by rendering them immortal, they would ascribe their deterioration to *any other* cause; to some supposed *alteration of climate*, and not of ours alone, but of the climate of all those countries where the same proofs of their mortality have appeared.

We await the proofs of such changes; meanwhile in their absence, I believe all will agree, that in adopting this theory, we adopt the safest course.

Mr. Knight and some others in England, and the Comte de Coloma of Malines, have succeeded in raising some new and valuable varieties of fruit from the seeds obtained by hybrydism or cross fertilization. In describing the principles and modes of practice of this art, I have had recourse to Phillips, to Knight, and especially to Lindley and M. Fries Morel, to all of them collectively. The same principles are alike applicable to trees of ornament and to flowers. But we are authorized in asserting, that this is not the mode which has been so generally adopted by Dr. Van Mons and others in Belgium—and that the mode by which so many new, and very extraordinary varieties of fruits have been there produced, differs essentially from this which I am now about describing.

The outer circle of the slender threads or filaments, which rise around the centre of the blossom or flower, are called the *stamens*, or males, and the central are called *pistillum*, pointals, or females.

The stamens bear at their summit a small ball called the *anther*, which contains the fertilizing powder called the *pollen*.

At the summit of the pistillum are the organs of secretion called *stigmata*, consisting of one or more intercellular passages leading thence to the base, where are situated the cell or cells in which are placed the ovula, or the rudiments of seeds.

The pollen, when viewed through a microscope, is found to consist of extremely minute hollow balls, filled with a fluid in which swim innumerable particles of an oblong or spherical form, and having an apparently spontaneous motion. When the anther is mature, it bursts or opens with an elastic force, by which its contents are dispersed, and a portion of them falling on the stigma which is of lax tissue, the moving particles of pollen descend through the tissue of the style, by routes specially destined by nature, into the cells, where the ovular are placed, and these being thus vivified, are converted into the seeds or embryo of a future plant.

The operation of hybridizing or cross fertilization must be performed in a dry day, and before the blossom is entirely expanded; the most favorable moment is just before the rising of the sun; the pollen being at that time humid, is closely attached to the anthers. The blossoms must be carefully opened, and the anthers extracted by delicate scissors, care being taken neither to wound the filaments which support them, or any other part of the flower.

About nine o'clock, the blossoms being exposed to the full influence of the sun, the matured pollen from another, variety must be carefully placed on the blossom which it is intended to fertilize, and from which the anthers have been extracted; and this operation must be repeated twice or thrice during the course of the day. By shaking the blossoms over a sheet of white paper, the time when it is perfectly mature will be ascertained. It is necessary to protect the prepared blossoms from the bees and other insects with thin muslin or gauze, which will not exclude the sun or air; and it is proper also to protect them from the rain and dews, till a swelling is perceived in the germ.

By screening the plants from the sun, and by frequent waterings, the maturity of the pollen and the stigma may be retarded.

When the process has been successful, the pollen which had been placed on the stigma, becomes so attached, that it cannot be removed with a hair pencil; it changes form and color and soon disappears, and the blossom will soon wither and fade. But when the process has been imperfect, the reverse, of all this is the case; the pollen is easily detached from the stigma, its appearance is unaltered, and it remains visible with the duration of the flower, which will continue for a long time.

The fertilized seeds thus yielded, produce generally flowers which resemble in color, or fruits which inherit mainly the qualities of the kind which furnished the pollen; while the form of the flower, or some of the constitutional qualities of the fruit, will resemble those of the plant which matured the seed.

No cross fertilization can take place between plants or fruits unless nearly related. None, for instance, can take place between the pear, apple or quince; or between the plum, peach or cherry, &c.

Wild plants or fruits while growing in their native wilds are generally perpetuated from generation to generation without change; but this is not the case with the hyorids or cultivated varieties, however isolated or far removed the tree may be, which produces the seeds, from any other of sit species.

The most intelligent writers have asserted, and it now appears to be admitted as an indisputatble fact, that the original number of varieties of the apple was very small, and that the numerous varieties, differing in size, form and flavor and periods of maturity, originated from the *wild apple* or *crab*, a small and very acid fruit. The pear, from a small and very austere wild fruit, has been in like manner wonderfully ameliorated. Mr. Knight seems persuaded that their fine varieties of native

English plums, originated from the *Sloe plum*, a wild and austere, small, black fruit—or according to Mr. Neill, from the *Bullace*, another wild plum, very small, and acid. The gooseberry, originally a small, indifferent fruit, has by cultivatieu, not only highly improved in flavor, but wonderfully in size. The large Dutch red and the large Dutch white currant, are highly productive and improved varieties. But the *white* currant, as Mr. Loudon asserts, is but a variety, produced from the seeds of the *red* currant.

Cross-fertilization may, indeed, effect important improvements, by combining in one object, those desirable qualities, which may be previously possessed by two other individuals in separate states. But it can never of itself, and alone, produce or create those opposite qualities, which had never existed before in any individual; but are as directly opposed to all that had ever before existed, as *white* is to *red* or to *black*, and we must look to other causes for such important changes.

The following mode, by which the Belgians have succeeded in obtaining so many new and extraordinary varieties, is from the account written by Dr. Van Mons—and for this valuable article, we are indebted to the researches of Gen. Dearborn, by whom this account was inserted in Vol. VII. No. 28 of the New England Farmer.

"The Belgians give no preference to the seeds of table fruits, when they plant to obtain new ameliorated kinds. When their plants appear, they do not, like us, found their hopes upon individuals exempt from thorns, furnished with large leaves, and remarkable for the size and beauty of their wood; on the contrary, they prefer the most thorny subjects, provided that the thorns are long, and that the plants are furnished with many buds or eyes, placed very near together. This last circumstance appears to them, and with reason, to be an indication that the tree will speedily produce fruit. As soon as the young individuals which offer these favorable appearances, afford grafts or buds, capable of being inoculated upon other stocks, these operations are performed; the apples on paradise, and the pears on quince stocks, to hasten their fructification. The first fruit is generally very bad, but the Belgians do not regard that; whatever it is, they carefully collect the seeds and plant them; from these a second generation is produced, which commonly shows the commencement of an amelioration. As soon as the young plants of this second generation have scions, or buds, proper for the purpose, they are transferred to other stocks as were the preceding; the third and fourth generation are treated in the same manner, and until there are finally produced ameliorated fruits worthy of being propagated. M. Van Mons asserts, that the peach and apricot, treated in this manner, afford excellent fruit in the third generation. The apple does not yield superior fruit before the fourth or fifth generation. The pear is slower in its amelioration; but M. Van Mons informs us, that in the sixth generation, it no longer produces inferior, but affords excellent fruits, intermixed with those of a middling quality."

Intelligent writers, those on whom we may rely, have assured us, that the new and numerous class of fruits which have arisen during the last forty years, in Belgium, is far more precious and inestimable in point of quality, than all previously known. They refer in this more particularly to pears.

Highly satisfactory specimens of some of the new species which are described in the following pages, have been seen and exhibited among us; enough to convince us of the decided excellence of at least a portion of them; but as yet but a small proportion of the new foreign varieties here described, have borne fruit in our country.

The unwearied labors of Van Mons, of Knight, of Coloma, of Hardenport, of Duquesne, of Nelis, of Liart, of Dorlain, and others, have probably effected more during the last forty years, than all that had been previously accomplished during twenty centuries.

All these fruits are recommended as highly deserving of trial in our climate. From them we must make our selections at another day, of such kinds only, as prove on trial, alike adapted to our climate, the very best in quality and the most productive.

From Chaptal's Chemistry applied to Agriculture.

SUCCESSION OF CROPS.

A soil may be forced, by extreme care, enormous expense, and the use of manure without measure, to produce all sorts of crops; but it is not in such sorts of proceeding that the science of agriculture consists. Agriculture ought not to be considered as an object of luxury, and whenever the produce of agricultural management does not amply repay the care and expense bestowed upon it, the system followed is bad.

A good agricultarist, will, in the first place, make himself acquainted with the nature of his soil in order to know the kind of plants to which it is best adapted; this knowledge may be easily acquired by an acquaintance with the species of the plants produced upon it spontaneously, or by experiments made upon the land, or upon analogous soils in the neighborhood.

But however well adapted the soil and climate may be to the cultivation of any particular kind of vegetable, the former soon ceases to be productive if constantly appropriated to the culture of plants of the same or analogous species. In order that land may be cultivated successfully, various kinds of vegetables must be raised upon it in succession, and the rotation must be conducted with intelligence, that none unsuited either to the soil or climate may be introduced. It is the art of varying the crops upon the same soil, of causing different vegetables to succeed one another, and of understanding the effect of each upon the soil, that can alone establish that good order of succession which constitutes *cropping*.

A good system of cropping is, in my opinion, the best guarantee of success that the farmer can have; without this, all is vague, uncertain, and hazardous. In order to establish this good system of cropping, a degree of knowledge is necessary, which unhappily is wanting to the greater part of our practical farmers. I shall here state certain facts and principles, which may serve as guides in this important branch of agriculture.

More extensive information on this subject may be found in the excellent works of Messrs. Yvart, and Pictet.*

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*"Cours complet d'Agriculture," articles *Assolement*

PRINCIPLE 1. *All plants exhaust the soil.*

Plants are supported by the earth, the juices with which this is impregnated forming their principle aliment. Water serves as the vehicle for conveying these juices into the organs, or presenting them to the suckers of the roots by which they are absorbed; thus the progress of vegetation tends constantly to impoverish the soil, and if the nutritive juices in it be not renewed, it will at length become perfectly barren.

A soil well furnished with manure may support several successive crops, but each one will be inferior to the preceding, till the earth is completely exhausted.

PRINCIPLE 2. *All plants do not exhaust the soil equally.*

Plants are nourished by air, water, and the juices contained in the soil; but the different kinds of plants do not require the same kinds of nourishment in equal degrees. There are some that require to have their roots constantly in water; others are best suited with dry soils; and there are those again, that prosper only in the best, and most richly manured land.

The grains and the greater part of the grasses, push up long stalks, in which the fibrous principle predominates; these are garnished at the base by leaves, the dry texture and small surface of which do not permit them to absorb much either of air or water; the principal nourishment is absorbed from the ground by their roots; their stalks furnish little or no food for animals; so that these plants exhaust the soil, without sensibly repairing the loss, either by their stalks, which are cut to be applied to a particular use, or by their roots, which are all that remain in the ground, and which are dried and exhausted in completing the process of fructification.

Those plants, on the contrary, that are provided with large, fleshy, porous, green leaves, imbibe from the atmosphere carbonic acid and water, and receive from the earth the other substances by which they are nourished. If these are cut green, the loss of juices, which the soil has sustained by their growth, is less sensibly felt, as a part of it is compensated for by their roots. Nearly all the plants that are cultivated for fodder are of this kind.

There are some plants which, though generally raised for the sake of their seed, exhaust the soil less that the grains; these are of the numerous family of leguminous plants, any which sustain a middle rank between the two of which I have just spoken. Their perpendicular roots divide the soil, and their large leaves, and thick, loose, porous stalks readily absorb air and water. These parts preserve for a long time the juices with which they are impregnated, and yield them to the soil, if the plant be buried in it before arriving at maturity; when this is done, the field is still capable of receiving and nourishing a good crop of corn. Beans produce this effect in a remarkable degree; peas to a less extent.

Generally speaking, those plants that are cut green, or whilst in flower, exhaust the soil but little; till this period they have derived their support almost exclusively from the air, earth, and water; their stalks and roots are charged with juices, and those parts that are left in the earth after mowing, will restore to it all that had been received from it by the plant.

From the time when the seed begins to be formed, the whole system of nourishment is changed; the plant continues to receive nourishment for the perfecting of its seed, from the atmosphere and the earth, and also yields to the grain all the juices it had secreted in its own stalks and roots: by this means the stalks and roots are dried and exhausted. When the fruits have arrived at maturity the skeleton remains of the plant, if abandoned to the earth, restore to it only a small portion of what had been taken from it.

The oleaginous seeds exhaust the soil more than the farinaceous seeds; and the agriculturist cannot be at too much pains to free his grounds from weeds of that nature, which so readily impoverish them; especially from the wild mustard, sinapis arvensis, with which cultivated fields are so often covored.

PRINCIPLE 3. *Plans of different kinds do not exhaust a soil in the same manner.*

The roots of plants of the same genus or family, grow in the soil in the same manner; they penetrate to a similar depth, and extend to corresponding distances; and exhaust all that portion of the soil with which they come in contact.

Those roots which lie nearest the surface, are more divided than those that penetrate deeply. The spindle or tap roots, and all those that penetrate deeply into the earth, throw out but few radicles near the surface, and consequently the plant is supplied with nourishment from the layers of soil in contact with the lower part of the root. Of the truth of this I have often had proof, and I will mention an example. If when a beet or turnip is transplanted, the lower portion of the spindle be cut off, it will not grow in length, but in order to obtain its supplies of nourishment from the soil, it will send out radicles from its sides, which will enable it to obtain the necessary supplies from the upper layers of the soil; and the root will become roundish instead of long.

Plants exhaust only that portion of the soil which comes in contact with their roots; and a spindle root may be able to draw an abundance of nourishment from land, the surface of which has been exhausted by short or creeping roots.

The roots of plants of the same and of analogous species always take a like direction, if situated in a soil which allows them a free developement; and thus they pass through, and are supported by, the same layers of earth. For this reason we seldom find trees prosper that take the place of others of the same species; unless a suitable period has been allowed for producing the decomposition of the roots of the first, and thus supplying the earth with fresh manure.

To prove that different kinds of plants do not exhaust the soil in the same manner, it is perhaps sufficient for me to state, that the nutrition of vegetables is not a process altogether mechanical: that plants do not absorb indiscriminately, nor in the same proportions, all the juices and salts that are presented to them; but that either vitality, or the comformation of their organs, exerts an influence over the nutritive action; that there is on the part of plants some taste, some choice regarding their food, as has been sufficiently proved by the

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et *Succession de Culture*, par Yvart. Traité de'Assolements," par Ch. Pictet.

experiments of Messrs. Davy and de Saussure. It is with plants as it is with animals—there are some elements common to all, and some peculiar to each kind: this is placed beyond doubt, by the preference given by some plants to certain salts, over others.

PRINCIPLE 4. *All plants do not restore to the soil either the same quantity, or the some quality of manure.*

The plants that grow upon a soil, exhaust more or less of its nutritive juices, but all return to it some remains, to repair a part of its loss. The grains and the oleaginous seeds may be placed at the head of those which exhaust a soil the most, and repair the least, the injury done it. In those countries where plants are plucked up, they return nothing to the soil that has nourished them. There are some plants, to be sure, besides those mentioned above, that by forming their seed, consume a great part of the manure contained in the in the soil; but the roots of many of these soften and divide the soil to a considerable depth; and the leaves which fall from the stalk during the progress of vegetation, restore to the earth more than is returned by those before mentioned. There are others still, the roots and stalks of which, remaining strong and succulent after the production of their fruits, restore to the soil a portion of the juices they had received from it; of this kind are the leguminous plants.

Many plants that are not allowed to produce seed, exhaust the soil but very little; these are very valuable in forming a system of successive crops, as by introducing them into the rotation, ground may be made to yield for many years without the application of fresh manure; the varieties of trefoil, especially clover and sainfoin, are of this sort.

PRINCIPLE 5. *All plants do not foul the soil equally.*

It is said that a plant fouls the soil, when it facilitates or permits the growth of weeds, which exhaust the earth, weary the plant, appropriate to themselves a part of its nourishment, and hasten its decay. All plants not provided with an extensive system of large and vigorous leaves, calculated to cover the ground, foul the soil.

The grains, from their slender stalks rising into the air, and their long, narrow leaves, easily admit into their intervals those weeds that grow upon the surface, which being defended from heat and wind, grow by favor of the grain they injure.

Herbaceous plants, on the contrary, which cover the surface of the soil with their leaves, and raise their stalks to only a moderate height, stifle all that endeavors to grow at their roots, and the earth remains clean. It must be observed, however, that this last is not the case unless the soil be adapted to the plants, and contain a sufficient quantity of manure to support them in a state of healthy and vigorous vegetation; it is for want of these favorable circumstances that we often see these the same plants languishing, and allowing the growth of less delicate herbs, which cause them to perish before their time. Vegetables sown and cultivated in drills, as are the various roots and the greater part of the leguminous plants, allow room for a large number of weeds; but the soil can be easily kept free, by frequent use of the hoe or weeding fork; and by this means may be preserved rich enough for raising a second crop, especially if the first be not allowed to go to seed.

The seeds that are commited to the ground often contain those of weeds amongst them, and too much care cannot be taken to avoid this; it is more frequently the case, however, that these are brought by the winds, deposited by water, or sown with the manure of the farm-yard.

The carelessness of those agriculturists who allow thistles and other hurtful plants to remain in their fields, cannot be too much censured; each year, these plants produce new seeds, thus exhausting the land and increasing their own numbers, till it becomes almost impossible to free the soil from them. This negligence is carried by some to such an extent, that they will reap the grain all round the thistles, and leave them standing at liberty to complete their growth and fructification. How much better it would be to cut those hurtful plants before they flower, and to add them to the manure of the farm.

From the principles which I have just established, we may draw the following conclusions.

1st. That however well prepared a soil may be, it cannot nourish a long succession of crops without becoming exhausted.

2d. Each harvest impoverishes the soil to a certain extent, depending upon the degree of nourishment which it restores to the earth.

3d. The cultivation of spindle roots ought to succeed that of running and superficial roots.

4th. It is necessary to avoid returning too soon to the cultivation of the same or of analogous kinds of vegetables, in the same soil.*

5th. It is very unwise to allow two kinds of plants, which admit of the ready growth of weeds among them, to be raised in succession.

6th. Those plants that derive their principal support from the soil, should not be sown, excepting when the soil is sufficiently provided with manure.

7th. When the soil exhibits symptoms of exhaustion from successive harvests, the cultivation of those plants that restore most to the soil, must be resorted to.

These principles are confirmed by experience; they form the basis of a system of agriculture rich in its products, but more rich in its economy, by the diminution of the usual quantity of labor and manure. All cultivators ought to be governed by them, but their application must be modified by the nature of soils, and climates, and the particular wants of each locality.

To prescribe a series of successive and various harvests, without paying any regard to the differ-

* In additions to the reason I have given why plants of the same or analogous kinds should not be cultivated in succession upon the same soil, there is another which I will here assign. M. Olivier, member of the French Institute, has described with much care all the insects which devour the neck of the roots of grain; these multiply infinitely if the same or analogous kinds of plants be presented to the soil for several successive years; but perish for want of food whenever plants not suited to be food for their larvæ, are made to succeed the grains. These insects belong to the family of Tipulæ, or to that of flies. (Sixteenth Vol. of the *Memoirs of the Royal and Central Agricultural Society of Paris.*)

ence of soils, would be to commit a great error, and to condemn the system of cropping in the eyes of those agriculturists, who are too little enlightened to think of introducing into their grounds the requisite changes.

Clover and sainfoin are placed amongst the vegetables that ought to enter into the system of cropping, but these plants require a deep and not too compact soil, in order that their roots may fix themselves firmly.

Flax, hemp, and corn require a good soil, and can be admitted as a crop only upon those lands that are fertile, and well prepared.

Light and dry soils cannot bear the same kind of crop as those that are compact and moist.

Each kind of soil, then, requires a particular system of crops, and each farmer ought to establish his own upon a perfect knowledge of the character and properties of the land he cultivates.

As in each locality the soil presents shades of difference, more or less marked, according to the exposure, composition, depth of the soil &c., the proprietor ought so to vary his crops, as to give to each portion of the land the plants for which it is best adapted; and thus establish a particular rotation of crops upon the several divisions of his estate.

The wants of the neighborhood, the facility with which the products may be disposed of, and the comparative value of the various kinds of crops, should all be taken into the calculation of the farmer, in forming his plan of proceedings.

There is another point in regard to crops that ought to be well weighed by the farmer; though his lands may be suited to cultivation of a particular kind, his interests may not allow him to enter upon it. The more abundant any article is, the lower will be its price; he ought then to prefer those crops of which the sale is most secure. If a product cannot be consumed upon the spot, it is necessary to calculate the expense of transporting it to a place of sale in countries where it is needed.

A proprietor ought to provide largely for the wants of his animals and of the men living upon his estate, before arranging for the disposal of surplus crops; he will then calculate his various harvests in such a manner, as to be always secure of receiving from the earth the means of subsistence for those employed in performing the labor.

An intelligent farmer, whose lands lie at a distance from a market, will endeavor to avoid the expenses incident to the transportation of his products; and in order to do this, he will give the preference to those harvests of fodder or of roots which may be consumed upon the place by his dependants and his animals.

There is another circumstance which must be attended to in sowing those lands which are light, or which lie upon a slope; for these it is necessary to employ snch vegetables as cover the soil with their numerous leaves, and unite it in every direction by their roots, thus preserving it from being washed away by rains, and at the same time protecting it from being too much dried by the burning rays of the sun.

DECREASE OF THE BLACK POPULATION IN THE "FREE STATES."

A late No. of the Journal of Commerce states, as "a curious and instructive fact, that while the colored population in the slave states increases with astonishing rapidity, in the free states it increases scarcely at all. The increase in Providence during the last five years is only 10, and in this city [New York] only 1019, which we presume is less than the amount of immigration from the south during the same period. In Dutchess County there is a decrease of colored population since 1830 to the number of 417; or one 6th of the whole."

The fact that the emancipated negro race in this country has either decreased in numbers, or increased very slowly compared to the slaves, may well be "instructive"—but it is not at all strange. It accords precisely with the laws of population applied to the general habits and circumstances of the negro family. Still, however striking may be the facts cited, they do not present a fair example of the operation of these laws. Where *a few* free negroes only are found, as is now the case in both the northern and southern states, they may subsist, and even increase, as paupers or pilferers, at the expense of the far more numerous industrious, or wealthy part of the community—just as as fragments of the gypsey tribe have lived in Europe. But if half the population of the north consisted of free negroes, or if all the slaves in the south were at once made free, and forced to subsist on the fruits of their own labor, the rate of decrease would be far greater. These anticipated results were stated in a passage in the earliest number of this journal, which will be copied here, as being even more appropriate to this juncture, than when first presented.

"Undoutedly the condition of a slave is deplorable, and it must ever be afflicting that such a state should exist, and be extended so widely over the globe, as to seem to be the inevitable lot of a large portion of mankind. But in our benevolent zeal for the removal of slavery, we should not forget that there are afflictions, numerous, wide-spread, and unavoidable, in the most refined and advanced state of society, that are even more intolerable than the slave's toil, stimulated by the slave-owner's lash. The substance, though not the name of slavery, is to be found almost every where in this miserable world—and the few favored spots now free from such causes of human suffering, must in their turn be visited with like inflictions. Except in newly settled countries, or in others having as yet a sparse population, and plentiful means of subsistence, and a free goverment withal, the laboring poor are slaves in fact, either to individuals, to government, or to their own craving and never satisfied necessities. The negro slaves of Virginia present striking examples of the first kind—the people of Egypt, and emancipated Hayti, of the second—and the entire laboring population of free and philanthopic England, of the third. Of these three kinds, personal slavery, as existing in Virginia, is the most injurious, or the least profitable, to the masters, and attended with the least unhappiness (so far as mere animal comforts are considered) to the slaves; and where hunger is the only task-master, its victims are the most miserable of slaves, and yet compelled to yield the greatest possible nett amount, by their labor, and abstinence from enjoyment. If a rich English manfacturer, or land-holder, was offered all the laborers in his employment, with their wives and children, and all their posterity, to be held precisely as the negro slaves are

held and maintained in Virginia, considerations of economy alone would instruct him to reject the fatal gift, as he would avoid certain bankruptcy and ruin. On the other hand, if all the slaves of Virginia were at once emancipated, and left to provide for themselves, want, wretchedness and disease, would make such havoc among them, as to threaten finally, and at no remote period, the extinction of the race. The adult males, and even the females not burthened with children, might possibly do well; bnt the greater number of the feeble and infirm, from old age, infancy, or disease, would inevitably perish. Marriages would nearly cease, and births greatly diminish, and the work of death proceed as if a general pestilence was raging. The effects of emancipation, in equal time, would diminish the African race in Viginia, more than the operation of any scheme that philanthropy has yet devised, though aided by the general will, and all the the disposable wealth of the country,"—*Review of the Slavery Question &c. p* 48, *vol. I. Farmers' Register.*

For the Farmers' Register.

A TRIP TO SOME OF THE SEA ISLANDS OF VIRGINIA.*

While in Northampton county for a short time during the last summer, I sought an opportunity to see some of the neighboring sea islands, which have not attracted so much curiosity as to induce many of their near neighbors on the "main" to examine them, though residing within the distance of twelve or fifteen miles—and they are scarcely known to exist, by most persons west of the Chesapeake. These circumstances stimulated me the more to incur the difficulties of making the passage to this almost *terra incognita.* The short time which I had to spare, and the necessity of bringing the trip within the extent of 24 hours, made my excursion more hurried, and the view more cursory, than was desirable.

After all preparations had been made, and we were ready to set sail at the appointed time, a change of wind compelled us to abandon the attempt for that day. The next morning, as it was arranged by W., (whom I had engaged as a guide,) to make use of the early tide, we were all to be on the shore two hours before day break. I thought that this appointment would not be likely to be kept by all—and so it proved. It was day break when we reached the shore, and the tide of the little creek was too low for our canoe to swim. There was no help, but to wait (patiently or otherwise) for the rising tide, which was not high enough for several hours. Even at the early hour when we arrived, the horse which drew our "carry-all' was soon beset by the green-headed flies, which are so abundant every summer as to be the greatest pest of the sea-side, and which are said to be uncommonly numerous at this time. They are seldom very troublesome except during the heat of the day: but now, one of us alone could not keep the horse clear of them: and if the attempt had ceased for a few minutes, the tortured animal, though well used to such attacks, would have broken loose, and taken to his heels. A servant soon reached the place, and we were glad to send the horse away. The dogs during the same time showed by their antics that if they suffered less than the horse, it was only because they had better means of ridding themselves of their tormentors. They were continually biting their rumps, or wallowing on the ground, or running about, as I have seen when one had incautiously poked his nose into a yellow-jackets' nest. These flies in July and August often compel the working horses to be taken from their ploughs by 10 o'clock, and to be kept in their stables until even 4 in the evening. But at this time, it is with great difficulty, and in torture to the horses and mules, that they can plough at all in the day. One proprietor has lately discarded the effort altogether, and for the last week has been ploughing his corn only during the night, for which the moon happened to suit well. He intends (as I afterwards heard from him) to cover his mules in full dresses of old sail-cloth, as the only probable mode of protecting them. These flies are known through all lower Virginia, but are no where numerous, or very troublesome, except on lands immediately adjoining these sea marshes, where they breed in the marsh grass. They are about five-eigths or three-fourths of an inch in length, here as elsewhere. This plague must be a serious offset to the value of lands, and the great advantages of living on the sea-side farms.

Where we were waiting was a tide mill, the pond of which usually was filled and then drawn low every day, and the bottom of which was now becoming bare rapidly. Flocks of sea-gulls were busy fishing in the deeper part of the retreating waters, and some hogs were advancing "in line" through the mud flats, catching shell-fish, or other food left by the tide. Our oarsmen went in for their share of the harvest, and picked up oysters, which were thrown upon a fire prepared for the purpose, and thus soon provided themselves with a breakfast.

Our pilot, and owner of our little vessel, was a regular sea-side fisherman, a sort of salt-water "Leather-Stocking," who was as much at home in the pursuit of his game, furnished by the waters, as the other renowned character was in the woods. His name might have been coveted for the hero of a lady-author's novel: but rough old Charles Dillon was any thing but what such a name would have indicated in romance. In his early days he had been employed enough on ship-board to make him a thorough sailor: but he preferred, and had now long pursued the business of fisherman, varied occasionally, according to his account (though of course *not recently,*) by the more adventurous and spirit-stirring exploits of smuggling and wrecking, but always in a decent and civil way. With all the points of character and of habits which belonged to his station, there were glimpses of better feelings exhibited from time to time, which made him appear to me as one of nature's gentlemen, marred by chance, and the force of circumstances. Taken altogether, there was much to admire in old Charles, and we soon became good friends and cronies. My first

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*It is proper to state that the following piece was written soon after the date to which it refers, and was on hand some time before our receiving the interesting account of another part of the range of islands, which was published in No. 7: which later and more particular statements were sought, and published first, because of the acknowledged haste, and therefore probable incorrectness, of the view of which the sketch was made that is now submitted.—Ed.

step in his favor was made by his finding out that I was a member of the Temperance Society—as that gave him what might otherwise have been my share of the contents of the bottle of rum which my companion had brought. Charles seemed to know by a sort of instinct, the state of the tide, even when in his bed. When at last it nearly served to float our boat, he was absent, having gone to his home, half a mile from the water, probably for some "creature comforts" of his own: but while W. was damning him very liberally for disappointing us, he made his appearance—and almost at the very minute that it was first possible to set off.

We started with the rising tide, rowing through narrow channels, bounded by naked mud banks and marshes. The shallow sounds or channels which separate the islands from the main land at this place are far from being open water, as I had supposed. Extensive mud shoals, which are naked at low tide, and not enough covered to be passed over, except at high tide, and numerous marshes covered with tall sea-grasses, fill more than three-fourths of the space, and make the navigation circuitous, and also difficult, to those not well accustomed to the routes. Thus ten miles, which is the nearest distance across the water to Hog Island from the the main, were made fifteen in our morning's voyage, and much farther when returning. The water too, through which the boats pass, is generally shallow, though there are open channels of sufficient depth for large sea-vessels passing between the line of islands and the main.

Our canoe was not so poor a sea-boat as its name would imply on our fresh waters. Though only of little more than twenty feet in length, at bottom, it was stiff and safe, of which we had abundant proof, furnished by the rise of wind before the trip ended. As usual here, the canoe had been sawn open, and widened by letting in a keel, and the sides were raised by laying on a plank to each. It had two masts, and sails, which were brought into use after getting into the more open water.

Gulls are here in great numbers, and of several kinds. This is their breeding time, and their eggs are much in request for food, and are considered a great delicacy. My companions landed to search for them on a marsh island. One kind of gull builds a nest of marsh-weeds on a high tussock. The eggs are nearly as large as those of hens, and quite as large as Guinea fowls'. The wetness of the marsh and my unwillingness to incur unnecessary risk of being make sick, prevented my leaving the boat at this place. The gulls rose in numbers with screams and moans, and accompanied the course and kept over the heads of the plunderers of their nests. It seemed to me at first a shameful act—but it would be difficult to show that it is less justifiable, or less merciful, than taking other living articles of food, as much for sport as for use. Afterwards when I accompanied the egg hunters on a sand islet, I soon entered very earnestly in the pursuit, and was in a fair way of losing all my previously acquired intolerance for bird-nesting.

The largest kind of gull seems to live on the insects or other light substances which float in the foam on the surface of the water. Its dexterity in skimming off its food is admirable. I afterwards observed them flying at their usual great speed, and for considerable distances, the tip of the beak just grazing the surface of the water, and apparently never varying from that precise gage, notwithstand the high swell of the waves required a continual and great alteration of the bird's course. Nothing could be more graceful, or more exact in movement.

We passed near to a large island, called Prouts', which is uninhabited, except by flocks of sheep. We had not time to call. This bears almost no trees; and wherever visible from the water, seemed to be but little else than sand hills very scantly covered with weeds or grass. It was said, however, that in the interior there is much of good grazing land. The north-western part of the island, which we approached, is losing greatly by the encroachments of the sea.

About half a mile from Prout's, and between that and Hog Island, (in Matchapungo Inlet,) lies a newly formed islet, which, with the peculiar felicity which our countrymen exhibit in giving names to places, has been dignified with the name of *Pig Island*. Until within the last ten years, this was only a shoal, which was usually bare at low tide, and sometimes was washed quite away by the fury of tempests. It seems now to be permanent, and will probably grow, by accessions of sand brought by the breakers, until it is a large island. I was particularly anxious to visit this spot—to catch nature in the fact, as it were, of producing land. This, doubtless, is the manner in which all the larger islands were formed in the open sea—and at an earlier epoch, the peninsula (or "main") also. Unless destroyed by encroachments of the sea, (of which there are many evidences, both on the shores of the islands, and on both sides of the peninsula,) it may be supposed that the sand hills, which give elevation to both, will gradually be driven by the violent power of winds and waves, until they spread over the shoals and marshes and make firm land of the space over which we had been sailing. The sand hills, which are formed altogether by the violence of the ocean waves, and of materials brought from the shallow bottom, are higher than any other land, either on the islands or the main—often 30 feet high, and sometimes much more.

It was at high water when we landed on this newly formed island; and it then seemed to be in size, from 25 to 30 acres. It had no where more than two or three feet elevation above the then height of tide. But a few growing weeds were seen—perhaps not a dozen in walking across it to the Atlantic side. And here we may trace nature's operations, not only in forming dry land, but in compounding soil of more or less fertility, out of materials separately barren and worthless. The island consists entirely of pure silicious sea sand, except for the mixture of shells scattered throughout. These, though recent, and of course very hard, were rarely entire, and gave evidence of the power of the water in breaking and grinding them down. Clay then is only wanting to give consistency to the soil, and make it even well constituted. Seeds of various plants will be brought by the winds and by the water. The dung of sea birds first, and next the growth and decay of vegetable matter, will give the fertility wanting. I am told that the shells are seen even at the tops of the sand hills: and if so, there can be no doubt

but that they must have been originally thus given generally, though too sparingly, to the whole main land of Northampton—though the ages which have passed have served to dissolve them, and conceal their former existence. The cultivated land in Hog Island, as I afterwards saw, now shows broken clam shells throughout—and the habits of the people,as well as their words, declare that the shells were never put there by the hand of man.

The sandy islet furnished a much more abundant supply of the eggs of another kind of gull—and all newly laid, as one of our crew had "egged" the place clean only a few days before. This kind of gull makes no nest, or at least, it is but a scarcely observable indentation on the sand. The eggs are smaller than those laid in the marsh. I found five nests containing from one to three eggs each, within the space of 40 yards. But as the tide was precious, we could give but little time to the study of world-making, or to bird-nesting. I requested my compenion to bring here some of the seeds of the Magothy Bay bean—which will grow well, ns soon as any thing can, and perhaps will greatly advance the time when this spot may become habitable.

I was disappointed in one object in visiting this islet. Though there standing on the beach of the great ocean, the water was so smooth that our canoe could have sailed as safely on that side as on the other. The wind set from the shore, and even if it had been towards it, the fury of the breakers would not have reached the beach,but would be spent on the extremity of a shoal which stretched out perhaps a mile into the sea. At that place, calm as it was, the white-capped billows were breaking magnificently, (at least to my unpractised eyes,) and with a continued roar, like the muttering of distant thunder.

We now steered for the landing on the western side of Hog Island. We had several hours to stop here, as there would be no advantage gained by returning before a particular state of the tide. It had been intended to walk across (more than a mile) to the ocean beach—but the fatigue previously incurred prevented, as it was stated that the scene would be nothing more than what was witnessed on the sand islet.

In part of the shallow waters of this sound there was a strange occurrence some years ago, which I have heard stated by several different persons, and which seems to rest on perfectly good authority, as I will repeat it. One of the islanders, named Travis, was out alone in his canoe, "striking" drum fish, in the usual manner, that is, with a spear, or harpoon, attached to a long wooden handle. While pushing over a place where the water was not more than two feet deep, or perhaps less, he came up with a large shark. He struck at him with his harpoon to no purpose, and the shark by its sudden and violent motion caused the man to lose the hold on his weapon. The enraged animal rushed against the canoe with such force as to upset it, and then attempted to seize on the defenceless fisherman. The shallowness of the water only prevented his instantaneous destruction. The formation of the shark makes it necessary for him to turn on one side to seize effectually so large a prey, and this the water was not deep enough to permit with ease. As he, however, with some little delay, grasped the leg of Travis between his jaws, the man, as his only possible defence, thrust his thumbs into the eyes of the monster, and kept them there, pushing himself off by the pressure and support, while the shark continued to nip his leg and thigh, and to make numerous wounds. Still he was not able to use his force effectually, and at last, let go and fled from his gouging antagonist. The man instantly righted his canoe, and jumped in, just in time before his enemy returned to the attack. He did not however again strike the canoe, and indeed his upsetting it at first was probably the effect of accident more than of a designed assault. The water, baled out of the canoe from time to time, was reddened with the man's blood, and served as a bait to draw on the shark, and keep up the threatened appearance of a renewed attack. But grievously wounded, and worn out with exertion as he was, and followed closely by his awful attendant, the fisherman was just enabled to paddle his canoe to the shore, and fell on the beach exhausted by loss of blood and fatigue. He received speedy aid, however, and sustained no permanent injury from his numerous flesh wounds.

On all the maps of Virginia, previous to the late one published by the state, these sea islands are represented very incorrectly, and as far smaller than they are. Very few persons, even in lower Virfiinia, know any thing of them—and the publication of the large new map has not served to remove existing errors on this subject, though it shows more size in the islands, and of distance from the main land. By the way, this map, with all its pretension, deserves but little credit for correctness in other places, and probably is even still still less to be relied on as to this region. In truth, the inlets,or passages between the different islands, are not distinctly seen any where from the main—and from thence the line of islands completely shuts out all view of the Atlantic. From these circumstances, and the difference from the older maps, it might be supposed that the land was gaining on the ocean, and the islands increasing in size. But it is understood that the reverse is the fact—at least as to firm land. The low marshes, which border all the islands next the sound, probably are increasing, and may in time fill up much of the space now covered by water. But it is believed that the ocean is encroaching on the eastern side—throwing sand hills in advance of its progress, and then sweeping all away. Numerous stumps of trees are said now to be seen in the shallow waters, left naked only at low tides: and on Smith's Island, the brick foundation of a house may be seen in the sea at some distance from the shore.

Hog Island contains several thousand acres. Eleven families reside on it, and live (as it appeared) in great comfort, on the returns of their fishing, and small amount of tillage. I visited several houses, on separate little farms, and was much pleased with the appearance and manners of the people. They were very civil, and kind in manner, without the least appearance of servility, or impertinent curiosity or familiarity. Every attention was offered that could have been desired, and nothing that was obtrusive or disagreeable. Indeed in the true and proper sense of the word, I have no where seen a more *polite* people than these plain and simple islanders. Hospitable they are in a high degree, and no doubt moral, and correct in conduct, according to their notions of

right and wrong. It must be confessed that they have never accounted smuggling and wrecking (in a decent way) among the things prohibited by the decalogue—but rather consider the opportunities for both as among the bounties of Providence, which are to be enjoyed temperately and thankfully. But the want of capital prevents smuggling almost entirely, notwithstanding the great facilities which the islands offer: and the erection of the light-house on Smith's Island, has almost put an end to the wrecking business, both lawful and unlawful. The strong inducements which the existence of high duties on manufactured commodities, and the peculiar features of this coast, held out to smuggling, have been but little availed of, compared to what might have been expected. If that means of breaking down the tariff for the protection of manufactures had been seriously resorted to, there would have been no need of the "compromise," nor of any other remedy. All the American naval power could not enforce here the execution of highly oppressive revenue laws, if there was a general wish to elude them—and it is some consolation that even *that remedy* is left, should there be a return to the prohibitory system, and a determination to destroy the blessings of free trade, for the benefit of particular favored interests.

Most of this island is covered with wood—some pine of small and worthless growth, and much cedar of great value as durable fencing timber. Much of this is carried to the main,for posts. The price of land here is as low, as it is high on the main. I heard of about 80 acres having been recently bought for less than 50 dollars, and from which more than that value in cedar posts had already been taken. The best of the cedar timber is said to be of a more ancient growth, the trees having been prostrated, covered by the sand hills, and now again laid bare by the encroaching sea. Whether from the nature of the soil, or from being afterwards saturated with salt, (as some think,) this timber is almost indestructible by time and exposure. But the modern cedar growth is of much less value, as if the soil had ceased to be favorable. With a view to the sending of cedar timber to the New York ship-yards, a northern man bought, and still owns, a large part of this island, for $3000—which perhaps is ten times what it would now sell for. The expenses of transportation had been so great as to disappoint the expectation of profit.

The soil of Hog Island is the most sandy that I had ever seen under cultivation. It is dry, and I saw no land moist enough for good grass land, except the marshes, which are subject to be frequently covered by the tide. The growing corn generally looked well: but when so speaking of it, I was reminded by the owners,that if a drought came, the crops suffered greatly more than any where else. They do not make oats, (or but rarely,) considering that crop most injurious to the productive powers of the soil—but suffer the land to rest one year between each two crops of corn. The Magothy Bay bean covers the land during this year of rest, and was then far more forward and luxuriant than on the main, where oats had preceded. It was here (on July 12th,) knee high, where best, and it is said will rise to three and even four feet hereafter. This might be a good manure crop for the land: but the owners seem to have no view of any such matter, and rake together and burn the dry remains, wherever in the way of their small ploughs. The moving sand-hills are gradually covering up and thus destroying the fields on the sea side. This might be arrested here and elsewhere, by planting the sand-hills with such trees or grasses as will grow on loose sands, as has been resorted to with success on the sea coast of France.

Miserable as may be the tillage and present products of this and the other islands (and on several of them there is no attempt at cultivation) I think that a proper selection of crops, and attention to the peculiar character of the soil and situation, might show that there exists a value, as yet unsuspected. The soil and situation (except as to latitude) agree very nearly with the sea islands of South Carolina, which are the most valuable of all the lands in the south—selling at from $250 to $300 the acre. Could not the same cause of value be found here, at least partially, by cultivating the fine sea island cotton? But if that culture is forbidden by want of sufficient warmth of climate, (which is far from certain,) there are other vegetables suitable to sandy soils, and some to saline soils, which might here be found profitable. The growth of every thing is said to be much more forward on the islands than on the neighboring lands of the peninsula—as much so perhaps as on inland situations 200 miles more south: and the vicinity of, and speedy navigation to the markets of New York, and other northern cities, added to the more early maturing of all vegetables that can thrive on the islands, would give to their cultivators double the customary prices for every product. But the good people seem not to have any thought of agricultural improvement, and wait with calmness and resignation for the gradually advancing sand hills to cover their still remaining cultivated fields. It would be a good speculation if a company would buy up some of the extensive and almost desert islands, and improve them for stock raising, if for nothing else. For this purpose but little would be wanting except to introduce suitable grasses, and to guard the stock from sea-faring thieves. If improvement for tillage was attempted, the adjoining marshes would supply both mud and vegetable matter in any quantity for manure, serving both to stiffen and enrich the soil.

Musquitoes here are so great a plague, that the report of them alone was enough to limit my investigations to day light. But a worse evil is the bad quality of the water for drinking, which stands in the wells at about four feet only below the surface of the earth. Wells are dug with a sloping side for the cattle to walk down to drink in dry weather. Hares are very numerous and injurious to the crops on Hog Island. There are no squirrels. It is known, by tradition, that some particular wild animals were formerly brought from the main, and turned loose to breed: and without such an origin, it would be difficult to conceive how any came here,that could not fly or swim from the main land.

In 1821, a storm produced so great a rise of tide,that this island, and all the others, were covered by the sea, except the more elevated sand hills. All the cultivated land was covered. The site of every house, on Hog Island was waist deep in water. Here and elsewhere most of the stock

were drowned, and some few persons also, on Smith's Island.

There are no slaves, nor any other than white persons on Hog Island. In making inquiry on this head of a very decent old man, at whose house we took dinner, I found that some of the islanders still own slaves, though they hire them out on the main, in preference to working them at home. He said that he had had the use of the last two slaves which had been on the island, but he found that they "wanted so much waiting on," that he was very willing to get rid of them. "They were lonesome here," he added, "as there were no others of their color, and I returned them to my father-in-law, to whom they belonged, that he might hire them out, as they wished, on the main."

On a shelf in this old man's neat log house, there lay a large new bible, to purchase which must have cost him the net income of his little property for some weeks. A newspaper, which had been brought as a wrapper to our victuals, was eagerly seized on, and read with such interest by several members of the family, that it induced me to think that here might be made a new and useful disposition of some of the religious tracts with which the good ladies have so glutted the market elsewhere. * * * * On inquiry, I heard that none had yet reached Hog Island.

Near the habitation, I observed several gourds hung up, with a hole in each, like those designed for martins to build in, but which were much too small for their use. They were intended for, and were used by wrens. My old host said he had been induced thus to accommodate them, because so scarce were hollows or suitable places for their nests, that they would often commence building where their labors were sure to be in vain. Sometimes, after having hung his jacket on a tree, while at work, he had found that a wren had commenced to build a nest in the pocket, or sleeve.

We left the island precisely at the time which would make the courses of the tides most favorable—and there was now a high wind which, though not quite fair, permitted a sail to be used, (and one was as much as the boat would then bear,) for the course through the most open water. The waves ran so high, that if I had suddenly found myself in such a situation without preparation, I should have thought that our best chance would be the chance of swimming. I am not much afraid of water, (for a landsman,) but have always deemed sail boats the most dangerous of all vessels. Yet so fast had my confidence in our pilot grown, that I felt perfectly at ease, while our little craft scudded over the waves, which once in a while meeting her bow, would throw a shower of spray over all her crew. The ordinary, and always proper precaution, of the line attached to the sail being held by the hand, so as to be let go when an upsetting blast of wind strikes, was neglected—and the line was tied down fast, as soon as each new course was taken. This produced a strong proof of the stiffness of the vessel, or of the good luck of its commander. We had barely escaped striking on the extremity of the wide shoal extending from the land which "rejoices in the name," of Rogue's Island, and had taken our proper course, when the wind increased so suddenly that the mast snapped close off, and that alone prevented the whole being capsized. The sail was caught and saved, as it passed by the stern—and the men barely had time to seize the oars and prevent the boat striking on the shoal to which it was drifting rapidly, and where it must have upset as soon as it struck, from the roughness of the sea. After this, we raised the other mast and sail, and our course through the water seemed to be rapid, and the passage delightful: but the course was made so circuitous by the state of the tide, that night arrived while we had still a long way to go, and along the creeks or channels between crooked marshes. To mend our prospect, it was very dark, so cloudy that no stars which could direct the course could be seen, and a thunder storm, with rain, was strongly threatening. The wind was now dead ahead, so that the oars were the only help, and my umbrella could not be hoisted, however desirable it might be, as it would be too great an obstruction to our progress. A strong argument now arose between W. (who also pretended to much seamanship,) and the pilot, as to whether the wind had shifted its direction or not—and uncertain as that was, the direction of the wind was the only guide to steer by. Though the marshes, (now so covered that the tall grass only was above water,) were on each side of us, it was too dark to see them unless very near, and we often rowed into the grass before it was seen. The boundary too of such marshes is so irregular, that steering close by them would make the distance more than double the proper course, and might the more certainly mislead, by the many and abrupt changes of direction. I gave up the matter—though silently, as I did not wish to discourage effort—and thought it was utterly impossible to find the way through such difficulties. I counted on nothing better than spending the night, anchored among the marsh grass, and with the addition of heavy rain. The violence of the wind had kept the musquitoes still, as yet—but if it should fall calm, they would be worse than every other annoyance. However, we tugged on, slowly enough, against strong wind, and partly against tide also. The rain at intervals began to patter, but fortunately it came to nothing worse. At last, from some more prominent features of the marsh and water, it was ascertained that old Charles' instinct had not failed him, and after seven weary hours of sailing and rowing, we touched the shore. The carriage which had been ordered to meet us at dark, had very properly been carried back, and we had a midnight walk of a mile and a half to my lodgings. Fatigue had kept off hunger, and left nothing wanting but rest.

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Soon after returning home, I met with my good friend Mrs. ———, who had recently made a tour to the north, and who gave me an amusing account of what she had seen. In return, I told her, that much nearer home, I had met with things, or had been correctly informed of their existence, far more strange: as for example—of the commonwealth of Virginia having desert islands in the Atlantic Ocean, and others well inhabited, where the gospel had never been preached—of there being on one (Chingoteague,) a breed of real wild, but diminutive horses, which lived on sea grass, and would almost starve on corn and good fodder, and which were caught by throwing the *lasso*, in South American style—of sailing on

the Atlantic in a canoe—of sea birds' eggs used as ordinary food—of wrens building nests in men's pockets—of a shark being beaten in single combat, by gouging, &c. All this list of marvels was pronounced to be an attempt at *hoaxing*—and Mr. ———, who heard the conversation, (and who moreover prides himself, on being an excellent general geographer,) even denied that there were any such islands existing. This was giving me so much less credit than Gulliver's Travels received from the English bishop, who declared that he "did not believe that *more than half* of what they contained was true," that I determined to lay my day's observations, trivial as they may be, before the readers of the Farmers' Register—furnishing the editor at the same time with a reference to a proper source for information as to the most interesting point, in relation to the "beach ponies," or wild horses of Chingoteague Island, of which I know nothing except by report.

EXTRACTS FROM A FARMER'S MANUSCRIPT NOTES.

[The accounts received at different times, and from several sources, of the author of the following communication, induced us long ago to invite his correspondence, with as much urgency as propriety permitted—and it is hoped that the general and desultory observations now furnished, are but preliminary to more full and minute statements of the separate parts of Mr. Walker's admirable and most successful practice as a farmer, as well as of his theoretical views of agricultural improvements and interests.

It is not our habit to refer personally to our correspondents, or to remark on any thing relating to them, except the communications before us—and even these are generally left to speak for themselves, and to make good their own claims to notice. If in the present case we depart from this usage, it is because of the peculiar situation of the individual, his well established and high reputation at home, as a farmer, and his being entirely a stranger, even by report, to nearly all of our Virginian readers. We understand that Mr. Walker is a farmer thoroughly trained by education in Britain—and by practice there and in this country—original, perhaps eccentric, in his modes of thinking and acting, but the general results manifesting that his departures from ordinary courses, are guided by correct reasoning, and sound judgement. Careless or regardless of the censure or the ridicule which may be always expected in such cases, he has in no way tried to justify the correctness of his views, except by their practical results—and by these best of proofs, his theories have been most generally well sustained. We have been informed by a highly intelligent correspondent, who recently visited the farm of Mr. Walker, that it exhibits most strikingly all the beauty of appearance, and of utility, that might be expected from the highest grade of agricultural skill, and industry—and that its owner is equally remarkable for the singularity and oddity of his opinions and manner. He left his native country on account of preference for the political institutions of this—but notwithstanding that general and very decided preference, feels strongly ,and expresses freely the defects in our policy which obstruct agricultural and economical improvement. So far as we now see into the politico-economical creed of the writer, it does not accord with our own: but we are not on that account, (and we hope that such is the case with all our readers,) unwilling to listen to the opinions, however opposite, of any enlightened and sincere friend of agricultural interests.

Concise as are the statements on practical farming, there are two points which, (as tested by Mr. Walker's successful experience,) deserve especial attention—viz: the application of putrescent manures as much as possible to grass crops—and always on the surface. Both of these practices are still but little extended in this country—and had been scarcely heard of by most of our readers a few years ago. But they are strongly sustained by many facts, as well as by sound reasoning, presented in many previous parts of this journal—and we doubt not that by their general adoption, a revolution, and a most beneficial one, will soon be produced in the agriculture of this country.]

LETTER FIRST.

To the Editor of the Farmers' Register.

Holmesburg, Philadelphia County, Oct. 12th, 1835.

Inclosed I send you five dollars—my subscription for the present volume of your Register—and I beg you to accept my very best thanks for the 1st and 2nd editions of your work on calcareous manures—in my opinion, one of the *few* works upon agriculture of any great value *yet* written. Indeed I am confident the day is not very far distant, when it will be found, that nearly all the existing works upon agriculture are becoming worse than useless, and with them will fall the existing theories of population and food.

I have read your account of the formation of prairies with the greatest satisfaction. This great and important discovery must ultimately lead to vast results, in the improvement of the soil. How *nature*'s school has hitherto been most strangely avoided and despised by farmers!—*and there they must acquire all their learning and all their knowledge.* But all improvers and discoverers in agriculture must be content to say of themselves as Lord Bacon did of himself, "I am the servant of posterity." You do well to hint at the *ignorance* of the *learned.* They name and catalogue things—measure buildings and ruins—describe cities, castles, scenery, pictures, statues, costumes, military accoutrements, courts and nobles, and enumerate armies, taxes, population, &c.; but *the laws of nature*—causes and effects, they leave much as they find them, or rather, they find very few of them.

I have been intending a communication to you for some time, but I am very dilatory with the pen, and my time is otherwise much occupied. I now send you a few extracts from my notes—just written as the thoughts occur—endeavoring to follow *nature*—the teacher whom farmers and most others have only occasionally *condescended* to notice since the creation. My views are—that man was formed to subsist upon animal and vegetable

food in certain proportions; these proportions varying from the equator to the poles; and that the laws governing the full, perfect and increasing production of food, are exactly in accordance with the laws of this organization. Therefore as man most duly observes this, the Creator's law of his subsistence, so does the production of food increase with increase of population—and by no other means; simply because it is not otherwise required; as man departs from it—so does the production of food decrease with increase of population—the latter going on to a certain extent, and ultimately followed by rapid decrease of population, as the soil becomes more and more exhausted. Hence the *real* cause of the "decline and fall" of Rome, and of all other ancient empires, and the declining and stationary condition of many modern ones. You have this sad transgression in operation in the south—the emigration to the west relieving you from its final and worst evils. It exists least in the north and is rapidly decreasing since the establishment of manufactories—the *true* stimulus to correct agriculture. The departure from this law exists to a frightful degree in Ireland, India, &c. Hence the *real* source of their misery, and *apparent excess* of population. In England, the rates of wages have raised parts of the *mass* to the *bread and meat power of subsistence—in the United States still far more*—and hence the *real* main essential source of all the prosperity, and consequently, of their advancement and civilization above all other nations. *This power* is now at work in France—and hence her progress since the revolution. Malthus certainly could not have known any thing of these principles, or he never could have arrived at the conclusions he did; hence (to me at least,) his very obvious, great, and sad errors. His conclusions are formed upon the facts of *decreasing* production of food, arising from tribes and nations failing, in their past and existing ignorance, to subsist according to the organization of man, and consequently, from not cultivating the soil, in accordance with that organization, which are, and *must* be the true and only principles of increasingly productive agriculture. It can scarcely be deemed possible that the breaking two of the primary and most important laws of man's nature and condition, can be amended and remedied by breaking a third—still more important, which commands his very creation!!! — and the most directly imperative of the three!!!

With these views, arising from various circumstances, and from observing the *difference* in the condition of the *mass* in this country and my own, (England,) and from a good deal of reflection upon the theories and doctrines of the *existing* school of political economy, and from some observations and study of the workings and operations of nature's laws, I set about the practical application of the above principles. I began with the English system of agriculture in the first instance—which I studied, and not idly, under three of the best farmers in England and Scotland. *Perpetual* tillage with *occasional grass* crops—as clover, &c. intermixed, and *separate perpetual* pasture. This boasted system, being that of England, Flanders, &c.—with the exception of its arable green and root crops for cattle, does not essentially differ from the agriculture of the earliest, rudest, and most ignorant stages of society, succeeding the mere hunter and pastoral stages—such is the slow progress of this science, upon which all human existence and civilization depends! *This system does not produce and fill the soil with a sufficient quantity of vegetable matter*—the primary, main essential source of all *fertility* and *permanent* and *increasing fertility*—(you have most ably and clearly shown in the last No. of your Register, the direction lime gives to that fertility upon the great scale of nature's works—) and I found it would not do either on the score of production or expense. This system mainly grew up under *war* prices and comparatively *low wages*—the latter, the curse and bane of all good agriculture—of manufactures, and every thing else, universally important and beneficial to mankind.

My farm is now not two-thirds grass, and something about one-third tillage; one, two, and three years grass and clover—alternating with one and two years only of tillage, with no *permanent pasture*. I do not pretend to say that these are the exact proportions according to the *organization of man*, as to his due and legitimate mode of subsistence; but I believe they are a close and correct approximation to it in *this latitude*. I formerly employed four to eight men, one boy, and seven horses; now only one man and two boys, and one and two other men occasionally—more of course, in harvest—and four horses often idle. The more perfect and productive *agriculture* becomes, the fewer hands it employs—the reverse of all other professions—thus leaving the *surplus* (not excess,) for those professions—yet supporting all. Otherwise improvement and civilization could never take place. The *worst* agriculture the *attendant* and *result* of the lowest rates of wages, employs nearly a whole population—otherwise excess of population would be frightful indeed, there being no demand for manufactures, &c. under such deadening circumstances. I have six large barracks and three barns, all full—the latter 50 by 34, 40 by 32, and 80 by 40 feet. Next year I must build again, and I believe I shall continue to do so for several years to come. My farm is barely 100 acres—the soil a light hazle loam, of medium powers, deposited upon gneiss rock, with a white and yellow clay resting between—the latter perfectly permeable to water—the former not so much so. Thirteen years ago when I purchased the farm, it was in the lowest state of impoverishment and exhaustion. I have purchased 8000 bushels of bones, and above 5000 bushels of lime—a good deal of straw, and not much manure. Now I sell all the hay and grain, excepting what the horses and four to six hogs consume, and all the marketable straw. I keep only three to six cows, and manure from 25 to 30 acres, besides ploughing up from 28 to 32 acres of clover and grass sod annually. There is neither hoax, falsehood or mystery in all this. If others will follow nature as I have endeavored to do, they may accomplish a great deal more than I have yet done, upon much better soils, and with much more favorable local advantages and circumstances than I possess. I use about 150 bushels of gypsum, and 400 of lime yearly. I manure no crops whatever but the grass, and that upon the surface, and always in its infant state. If this is not a law of nature, we know not one of them yet. Go into the woods and prairies, and foul fields covered with weeds, in the fall, and see if it is not so. I lime no crop excepting grass, and in its infant state, at the rate of 10

to 15 bushels per acre (slaked under cover,) about once in three years, or as I see the sorrel come. We have guides and directions in profuse abundance if we will learn and look for them. I formerly thought the farmer had to blunder out and stumble upon his knowledge, in the best way he could, by long, tedious, painful and expensive experiments. It is a great error and mistake: the laws for his guide and observance are as marked, distinct, and simple, as those for the mechanician, only far more multifarious—and their truth is not quite so soon ascertained.

I apply manure, lime and gypsum, at leisure times upon the grain stubble, young clover and grass, in the fall—late in the winter—or early in the spring—so that there is no interference whatever with the very short and most important of all periods, seed time and harvest. The exact due times of sowing and planting each crop are so soon passed over with the crops duly varied and proportioned to each other, that I consider this fact alone as conclusive proof that any operation at these times, excepting those of the plough, harrow, and seed bag, or drill, is contrary to the laws of nature—therefore none others were intended to be performed at seed times, when the crops are manured, limed, &c. Upon no farm in any country is the whole sowing scarcely ever accomplished in due season—particularly, as upon no farm are the crops yet duly proportioned with each other.

In England, the turnip husbandry is the main and essential support of the yet (there as elsewhere) almost exclusively separate and perpetual arable farms—and this most important crop (the foundation and support of England's prosperity, civilization, and wealth,) being always manured, it is made a most expensive, severe, formidable, and tedious operation—and the manure being applied only once to the soil in the whole year, a great deal of it is lost by the rains and fermentation, and the last sowed turnips are generally put in so late, as often to be not bigger, as the Scotch Lord of Session said of his own crop, than "*golf haws.*" In wet seasons the operation of manuring ploughed land is dreadful and hideous, and the delay and mischief are greatly injurious. By my practice, all this, and the great cost of making and hauling compost and manure heaps two or three times over, and the immense waste from fermentation, are saved. By top dressing the grass in its infant state, and in one, two, and three years ploughing up that sod and rotting it, I get better crops of all, and at far less expense than formerly.

In no instances whatever, are the laws of nature so broken. outraged, and neglected, as in the consumption of food—or rather non-consumption in most countries—and consequently in the production of it: and until these laws are duly and perfectly observed, no other laws (of nature) can be so—that is, likewise duly and perfectly. The former laws are best observed in the United States—hence its rapid and matchless progress. The observance of the latter is only retarded by the occupation of the western lands. Freedom and excess of land (or rather the soil being unoccupied) have here produced precisely the same effects—exhausting thesoil, but only temporary—which despotism and low wages have produced in other countries, likewise only temporary.

A writer in the Philadelphia National Gazette of September 4, in speaking of your *Essay on Calcareous Manures*, says: "The agriculture of our country is on the eve of a revolution more important and glorious in its effects upon the wealth, intelligence, physical beauty, and moral grandeur of our stupendous land, than ever was, or ever will be exerted by the great power that the intellectual energies and indefatigable enterprise of man have ever made subservient to his use." With this opinion, as the members of "deliberative and dignified" assemblies,parliaments,&c. say "I entirely concur"—in what the dignity of those bodies consists I cannot say—but I think they generally deliberate to small purpose. It is not the arbitrary laws of man which improve the condition of man—for if they did there has been enough of them, such as they are, to have made him perfect long ago. No, they will not do—we want the developement of the laws of nature in agriculture, manufactures, commerce, education, knowledge, &c. with as little parliament as possible. Parliament law is a poor substitute for knowledge. This by the way--as the good old Dr. Coventry used to say in his lectures.

What deplorable and frightful descriptions of the state and condition, and consequently of the morals of the people, do the reports of the parliamentary commissions of inquiry present iu England in part, and in Ireland throughout! All remedies for which are nugatory and vain, without higher wages and better agriculture preparatory to all others, so that the people may procure food, clothing, and habitation, more in accordance with the laws of the organization of man. If a legislator does not understand these laws, all laws of *his* making can, and will do little but mischief. The Malthusian and other doctrines of the existing schools of political economy and *philanthropy* are the worst and most mischievous possible. France put them in operation in 1789! Whilst in England the introduction of the turnip, (for it is not a native,) with the great discoveries of Bakewell, Culley, Dawson, &c. and Arkwright, Watt, and others, all combining to raise wages, and increase and elevate the demands and means of subsistence—raised that country to its present power and civilization, and *may*, and probably will, save it for ever from the horrors of revolution, in spite of all the vast evils and errors of hereditary and conservative legislators!!

Without the existence of the means and powers to develope the natural powers and resources of the soil, there can be nothing but misery and destitution, and if what is produced is exported for the benefit of a few, or for absentee landlords to more fortunately situated countries, that destitution and misery are extreme, and finally reach all—for with low wages the people cannot consume, and what they produce under those circumstances only exhausts the soil. The wants of man must be fulfilled—for as Lamartine most truly observes, "Providence never creates wants without at the same time creating the means of satisfying them." But I am rambling into political economy, and forgetting farming—but they are inseperably interwoven and connected together.

I have more of these notions, if you like them, and some on wages, one of the most important of all questions, now beginning to excite attention—and some on the purposes and use of weeds—and some observations upon the present slavery ques-

tion. My firm conviction is, that the conservative powers in Europe are at the bottom of it. There are many very suspicious circumstances tending to prove this. Amongst others, Sir Robert Peel's extreme idiotic (impossible) ignorance of this country and republicanism, in his late speeches, (pretended ignorance of course.) I believe Thompson is one of the agents, and Tappan, and others, honest fanatics—of course, their tools. The indemnity question is another part of the mischief going on. We shall have something else to do, by and by, than quarrelling with each other. I am not quite sure that Judge Lynch is not in a great degree another agent—as General Lud and other worthies were known to be agents of Castlereagh's and Sidmouth's administrations. When mischief suddenly and simultaneously breaks out in various parts of a country, sinister agency is always at work in such cases. There can be no motive in the present times in this country for any domestic agency of this kind—but there is a most powerful one in Europe at this time. Don't let us quarrel with each other—for rely upon it the enemy is in the camp.

GEORGE HENRY WALKER.

LETTER SECOND.

To the Editor of the Farmers' Register.

November 7th, 1835.

You appear to have been led to believe that I keep a sort of agricultural school; God forbid I should ever do any thing of the kind. I never had more than six pupils at one time—and this is three too many. I never wish to have more than two. You ask for some account of my method of instruction. This is soon told—for I consider education a very simple and a very easy business. First, I endeavor to take no young men but those who have a *decided talent and taste* for the profession—(and here is the whole business and secret of education in every profession—for no one can any more make a youth into a farmer, or any thing else, *who has no talent and taste for it*, than *they can make* turnip seed produce pine apples—) set before them all I know—and *force and cram nothing*—(for this will no more succeed with the human, physical, and mental fauulties, than with vegetation—) make friends and companions of them—and if they have the sense, zeal and ambition to ask and observe and learn the *whys* and the *hows*, all will be right without trouble or difficulty to either party. Of my success, it is impossible yet to speak. My pupils are all yonng men; and agriculture is a slow process; and several of them have not begun operations. * * * * * * I most strenuously object to all education *apart from constant, direct and immediate female society, care, superintendence and control.* For this, with other reasons, I consider boarding and manual schools, colleges, orphan asylums, &c. as the worst and most pernicious of all systems and institutions; and the Girard College so much lauded, as the worst of them all; and the latter as wholly unnecessary in *this* country. I have now four orphans in my house, and am happy to get them—two boys and two girls—the youngest only four years old.

I think the less *legislative* action and interference there is, in most instances, the better. Perhaps one of its most useful and legitimate duties would be to reward those discoverers and inventors, whom the benefits of patents, copy-rights, and just and immediate profits, cannot reach. It would greatly stimulate exertion and industry, and be quite as just to individuals and beneficial to society, as giving *swords and grants to military men only.* The discoverer of any great law of nature is generally the least benefited by it. Arkwright and Watt, from peculiar and favorable circumstances, were exceptions.

The education of the *head* and *hands* must always go together, or the health, strength, and efficiency of the physical and mental powers of man can never be duly developed and maintained. The education of the latter ought unquestionably to take precedence of the former. As to *time*, the *morals* of *both* and the education of the *heart* to be attended to from *infancy.* Men whose heads are educated, and not their hands, are too often only upon a miserable par, in deficiency of common sense and power and capacity of action, with those whose hands only are educated. Mental and physical education being kept apart—and the latter often wholly neglected—render men and women as inefficient and useless, (as Franklin said upon another occasion,) as a pair of scissors are without the rivet.

I think you rather hint an objection to connecting agriculture and political economy. You must permit me to write as it comes, or I cannot write at all. Besides, we cannot investigate the highest subjects without descending to the lowest and the meanest results and operations. The finest building owes its strength and durability to paltry nails and dirty mortar. So the sound, universal, and permanent prosperity of a nation depends upon how many *slices* of *beef, pork and mutton the people eat* with their *bread* and *potatoes;* and what is the use of discovering the best system of agriculture, without showing what is necessary to *permit* its establishment?—and under what circumstances it can, and cannot be established—otherwise this would be as mischievous as placing great wealth in the hands of a man without educating him in the proper care of it. * * *

G. W. WALKER.

OLD PRACTICES AND NEW DOCTRINES.

To the Editor of the Farmers' Register.

Cypress Spring, Essex Co.,
November 25th, 1835.

In your last No. I made some remarks relating to the Twin Corn, and had intended measuring a small lot which I had growing near my house, but the fowls and four or five shoats, which were continually upon it, made such havoc, that I have declined it. Suffice, however, to say, that I think it will yield more to the acre than any corn I have ever cultivated.

In this, our enlightened day, it is surprising how slow is the march of improvement in agriculture in some parts of our county. Although there are many, very many good farmers in our county, yet there are those who do not in the least profit by their example, and who are still following the *good old way* of their fathers.

Not long since, riding in the field of one of my neighbors, I saw his laborers engaged in spread-

ing manure (for this article is sometimes used with us) with their hands, while another was cutting up straw with an axe, on the end of a cider trough, for the want of a cutting-box, now so cheap and common among us. Upon inquiring of my good neighbor why he did not use manure forks, he replied he had none, and did not even seem to know such things had ever been invented. Time saved is money gained. I am sure more work of that kind can be done by one hand with this implement, than by four without it.

One of our merchants brought on some of these useful tools, and had actually to sell them to a farmer who knew their use, at, or for less than cost—because, as he said, they were a dull article. Our county abounds in the very best marl; but unfortunately for us, "it is so heavy we cannot cart it upon our lands: it will kill our teams, and break our carts." Sometimes your paper is borrowed, but it is not generally believed that while our farms (the farms of our neighboring *big fish* on the river excepted,) do not yield us more than from one and a half to two barrels of corn, and three or four bushels of wheat per acre, there can be land made to produce the *enormous* crop reported by some of your correspondents. Do, for the sake of us *small fish* in the forest, insist on your correspondents in future, when they feel disposed to give any thing in the *big way*, to sign their proper names to their communications, or they will not be credited, at least, by us foresters—for our faith, like our land, is weak.

P. G. DERIEUX.

ON PREPARING GYPSUM FOR USE, BY HEAT

To the Editor of the Farmers' Register.

Prince Edward, Nov. 26th, 1835.

The comparative merits of burnt and of ground gypsum for agricultural purposes, are thought by some to be as yet unsettled in the Register. The experiment of your contributor from South Carolina was, however, to my mind, quite satisfactory. Having lately read a translation of Chaptal's Agricultural Chemistry, which probably not many of your readers may see, for some time to come, I will transcribe a page or two, giving the practice in France, and his views on that subject.

"The use of plaster or gypsum, which has become common in Europe as a manure, is one of the most important improvements that has ever been made in agriculture. It has even been introduced into America;* where it was made known by Franklin upon his return from Paris. As this celebrated philosopher wished that the effects of this manure should strike the gaze of all cultivators, he wrote in great letters, formed by the use of the ground plaster, in a field of clover lying upon the great road leading to Washington, "This has been plastered." The prodigious vegetation which was developed in the plastered portion, led him to adopt this method. Volumes upon the excellencies of plaster would not have produced so speedy a revolution. From that period the Americans have imported great quantities of plaster of Paris.

"There are, however, some tracts of country where the use of plaster has been attempted without success. But this arose from its being one of the original constituents of the soil, which derived no advantage from the addition of a new quantity. The existence of this salt, naturally, in those lands upon which plaster produced little or ho effect, has been proved by analysis.

"Gypsum is a compound of sulphuric acid and lime, containing more or less of the water of crystallization. A moderate heat deprives it of its water of crystallization, and renders it opaque. It can then be reduced to powder, and employed in that state. Though the prepared gypsum absorbs water with avidity, and its consistency is affected by the mixture, it may be preserved many months without its properties being sensibly affected. Nothing more is necessary for this purpose, than to head it up in tight casks.

"Gypsum carefully broken is likewise much used; and there are some farmers who attribute to it the same efficacy as is possessed by that prepared by heat. I have myself made some comparative experiments, and observed, that the baked plaster evidently produced a little more effect the first year, but during the three years which followed, the difference was almost nothing.

"The gypsum is scattered by the hand atthe time when the leaves of the plants begin to cover the ground, and it is best to take advantage of a light rain for the operation, as it is thought to be beneficial to have the leaves moistened, in order that they may retain a small portion of the powder.

"The effect of the gypsum is perceptible during three or four years. The use of it can be resumed at the end of that time. The quantity in which it is usually employed is from $2\frac{3}{4}$ cwt. to $3\frac{1}{8}$ cwt. per acre.

"Much has been said upon the effects of plaster. Some have pretended that its action ought to be attributed to the force with which it absorbs water. But it solidifies that liquid, and does not part with it either to the atmosphere, or to any other surrounding body; so that this doctrine does not appear well founded. Besides, if its action were from this cause, it would be momentary, and cease after the rains; and this is contradicted by experience. Moreover, it is believed, that the broken gypsum has not the property of absorbing water, and yet it produces nearly the same effects as the baked and powdered plaster.

"Others have thought that plaster acted only by favoring the putrefaction of animal substances and the decomposition of manures. But Davy has refuted this opinion by direct experiment, placing it beyond a doubt, that the mixture of plaster with manures, whether animal or vegetable, does not facilitate decomposition.

"There are others again, who attribute the effects of plaster to its stimulating property; and these adopt, in its utmost extent, the opinion which I have formed on the subject. It still remains, however, to be explained, why this salt, which is not more stimulating than many others, acts with so much better effect, and why its action its continued during several years, whilst that of others is exhausted in so much less time, why this salt never dries plants, whilst the others, if employed in excess, burn them up and destroy them. These are problems which remain to be solved, and of

*This savors a little of the manner of English travellers in writing about us.

which the solution cannot be found, in the stimulating properties of the plaster.

"Hitherto it has been sufficient to state the good effects of plaster, in order that agriculture might be enriched by so important a discovery. The fact alone is sufficient for the farmer, and it is not the only one in which the theory can add nothing to the practice. I shall; however, give here a few of my ideas upon the action of plaster; and I publish them with the more confidence, because they appear to me to be deduced from well established analogies.

"It is proved that those salts which have a base of lime or alkali, are the most abundant in plants. Analysis also shows, that the different salts do not exist in the same proportions, either in plants of different kinds, or in the different parts of the same plant.

"On the other hand, observation shows us every day, that these substances, to be beneficial to plants, must be presented to them in proper proportions; for if too great a quantity of salts easily soluble in water be mixed with the soil, the plants will wither and die; though they will languish if totally deprived of the salts. A little marine salt, mixed with dung and spread upon the soil, excites the organs of plants and promotes vegetation; but, too much will produce a pernicious effect upon them.

"If we now consider that salts can act upon plants, only in proportion to their solubility in water, through which medium they are conveyed, we can conceive, that those which are least soluble will be productive of the greatest advantage.

"Water can hold in solution at any one time, but a small portion of these saline substances; and as they will always be conveyed into plants in the same proportions, their effect will be equal and constant, and will be continued till the soil be exhausted of the salts. The length of this period will be according to the quantity of them which is contained in the soil, and to the plants not being rendered liable to receiving more of them than it needs.

"The solubility of plaster in water appears to be precisely of the degree most beneficial: 300 parts of water will dissolve only one of plaster. Its action is therefore constant and uniform, without being hurtful. The organs of plants are excited by it, without being irritated and corroded, as they are, by those salts which being more soluble in water, are carried more abundantly into plants, producing upon them the most injurious effects.

"The greater part of those salts which are found in plants, serve no purpose of nourishment; they are generally useful only as stimulating the organs, and aiding digestion. Animals, as they enjoy the power of locomotion, can easily procure for themselves these stimulants, and whatever is needful for the exercise of their offices, and they take only such quantities, and in such proportions, as are suitable for them. But plants have no other medium than air and water, through which to receive their supplies; and this last transmits to them indiscriminately, all which it can dissolve from the soil: whence it follows, that the best saline manures are those that can be only gradually dissolved.

"This principle is applicable to all manures of whatever nature. There is, however, this difference in the effects of manures purely nutritive, and of the stimulating or saline manures: if the first be too abundant, the plant absorbs more nourishment than it can readily digest, and becomes affected by a kind of obesity; the texture of its organs is rendered soft, loose and spongy, and unable to give to their products the due degree of consistency; whilst, on the contrary, if the stimulating manures be supplied too profusely, and especially if they be of kinds very soluble in water, the organs of the plants are dried and parched by the excess which they receive.

"Those animal substances that are the most slowly decomposed, and which by their decomposition, always give rise to soluble products, are the best of all manures: of this, bones, horns, and wool, afford a sufficient proof. These substances possess the advantage of affording to plants their suitable aliments, almost always combined with a stimulant, such as ammonia, of which the too irritating action is moderated by its union with carbonic acid, or with animal matter.

"The ashes of the turf and of pit-coal produce wonderful effects upon grass lands. The first of these, often contains gypsum, but frequently only silica, alumina, and the oxide of iron. From ashes of pit-coal I have obtained by analysis, sulphuret of lime.

"The ashes produced by the combustion of wood in our common domestic fires, give rise to some very remarkable results. Without being leached, these ashes are much too active; but after having been deprived, by the action of water, of nearly all their salts, and employed in this state, under the name of *buck ashes*, they still produce great effect.

"The action of the buck ashes is most powerful upon moist lands and meadows, in which they not only facilitate the growth of useful plants, but if employed constantly for several years, they will free the soil from weeds. By the use of them, land constantly drenched with water, may be freed from rushes, and prepared for yielding clover and other plants of good kinds. Wood ashes possess the double property of amending a wet and clayey soil, by dividing and drying it, and of promoting vegetation by the salts they contain."

The foregoing extract is taken from page 73, *et seq.* of the first American, translated from the second French edition of "Chemistry applied to Agriculture by John Antony Chaptal," published in Boston by Hilliard, Gray, & Co. 1885. It seems to settle the question of the utility of burnt or baked plaster, upon good authority. Chaptal was a great chemist and a distinguished farmer. To this section of country it is most important, that we should be able to get plaster at a price much reduced from its present standard. Nearly twenty years ago, I bought plaster at five dollars per barrel, which, allowing seven barrels to the ton, is thirty-five dollars per ton. Since that time the price has been regularly diminishing. Last spring it sold at sixteen to fourteen dollars. Our agriculturists, however, cannot afford to purchase largely at these prices—especially, as there is a strange capriciousness in the action of even the best plaster on our lands. If baked plaster will answer, there will be no necessity for it to change owners so often between the importer and the land holder, and of course, it will cost less. We have also reason to hope that the cost of car-

riage will be much reduced by the contemplated improvement in the means of transportation.

The importance of the subject has led me, though much pressed for time, to prepare for you a most hurried transcript of Chaptal's views, which you can publish as they are, or abbreviate to suit you. Your own opinion on some of his points would doubtless be acceptable to your readers. I deem it proper, that some facts, which have been observed in this neighborhood, should be furnished you, in relation to the transmission of salts into plants.

On my tract of land there are several spots, originally deer-licks, which for a long time remained entirely barren of all vegetation, and in certain states of weather, would be frosted over with beautiful crystals of marine salt. These, by the washings from the grounds above, and other causes, have within a few years been covered with some soil and a little vegetable matter, During wet spells, in warm weather, grass will grow on these spots with considerable luxuriance; but as soon as the weather becomes dry, crystalization of the saline matter exuding from the surface of the grass, leaves may be observed—the plants are all white with salt, and in a few days, not a vestige of verdure can be seen. Some of the grass-roots, however, survive, and grow again on the return of moist weather. Possibly some of the marine vegetables which yield soda might grow well on these spots. Trees also are liable to receive into their vessels an excess of saline matter. Not long since, a very wet sack of salt was laid at the root of a young Lombardy poplar in Farmville. A moist spell ensuing, the tree flourished for a while, and a beautiful crystallization of salt was observed on the under side of every leaf. On the return of dry weather, every leaf dried up and fell, and the tree was thought to be killed. It afterwards revived, and is still alive.

I have recently learned that much of the secondary stripe of land, on which I reside, was, at the settlement of this region, destitute of trees. I have seen the original patent for my tract, in which, it is stated to lie on the *barren-lick* branch; and my father, who is still alive, can remember when much of the tract was bare of trees. I state this fact, becanse I know you wish information on such matters.*

W. S. MORTON.

"CHARITY THINKETH NO EVIL."

To the Editor of the Farmers' Register.

After an absence of some weeks from home, I returned only a few days ago—when, for the first time, I saw your September No. You may imagine my surprise, when looking over this valuable journal, I turned to a paper written by myself, to which you have given the horrid caption of "A deed without a name," and to which you have appended, by way of comment, "that the author's fact you hold as nought—himself, unworthy of credit," or words to that effect; and further, that the communication would not have been noticed, but for its supposed personal bearing.

Mr. Editor, (if the author be at all worthy of credit,) nothing was further from his intention than to inflict on you the slightest injury, by thought, word, or deed. He believes you like nothing fulsome; but it is an act of sheer justice to say, that he regards you as a public, a national benefactor. He believes, that, like Moses of old, you are leading through a dreary wilderness to a land of promise—understand me, Mr. Editor, I intend no impiety—I mean that if we follow your advice, and example, this land of sterilty may be converted into one overflowing with milk and honey—a land which the Israelites might have sought, as one of God's best gifts, when fleeing from the wrath of Pharoah.

The article on which you have fixed the seal of your bitter denunciation, was written in a moment of exultation, after having witnessed the wonderful effects of marl, on a soil exhausted by the severest usage. I am not very certain that it was not prompted by a feeling of gratitude to the giver of all good things, for the wonderful provision of his bounty, in placing within the reach of us, his poor creatures, the means of an ample return for the sweat of our brows.

Perhaps, sir, I may be an enthusiast on this subject; but I am possessed with the belief, that by the simple application of marl, the tide-water district has within itself the means of an entire restoration of the original fertility of its soil; and nay more, that by its judicious application, the land itself will become more productive, and the air we breathe, more salubrious. Why should it not be so? The best European and American writers think lime a necessary ingredient of every fertile soil: you yourself seem to be satisfied that calcareous matter only is wanting to render our tide-water lands productive—this of course, with a due quantity of vegetable or animal manure—for without a reasonable return of these, no man in his senses can expect his *mother earth* to afford him abundant harvests. Marl will supply this valuable desideratum. So much for fertilizing the earth. Sir John Sinclair, (whose name is a host,) states, that however productive soils may be rendered, (I quote from memory,) yet if it be from the effects of lime, no injury to health ensues, as the decomposition of the vegetable matter is corrected by its presence: of course, the air it gives out in its putrescent state is not inimical to human liife. Now, sir, are these facts? If so, here is my conclusion—that marl not only fertilizes the earth, but purifies the air we breathe; and looking through the operations of nature up to nature's God, I devoutly thank him for his manifold gifts—not the least of which, is his unspeakable goodness, in this wise provision of his bounty, in placing within the power of us poor mortals, by a judicious application of our labor, the means of health and abundance.

I am afraid to say more on the subject of my experiments, lest you should again nail them to the counter as base coin; and hereafter I must content myself with pursuing the even tenor of my way, as an unobtrusive, but *bona fide*

MARLER.

[We beg our correspondent to dismiss from his mind

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*The readers of the first No. of this journal will remember Dr. Morton's description there given of the stripe of land which is here referred to, and the reasons for believing it to have derived its peculiar character from containing calcareous matter. Ed.

all suspicion of having excited any unkind or unpleasant feeling. It is true that his former communication was considered as more jocular than serious—but his joke was deemed a *very good* joke—and not the less amusing, or the less acceptable, because of its supposed bearing on the editor's "hobby." But if we mistook the purport of his piece, we hope that the mistake will not cause him to abandon his pen, as he intimates—but rather that it will induce him to lay aside his *incognito* character, and as a "*bona fide*" and correspondent, under his proper name, as well as "*bona fide* marler," will prevent all future mistakes of his intentions, and *command* respect and credence for his statements.]

From the Somerset Journal.

A WORD TO FARMERS.

It is not perhaps generally known, that the potato tops sustain through the winter a worm very destructive to grain. Mr. Chapman, of Madison, in this country, showed me a few days since a piece of wheat, on ground where potatoes grew last season, on a part of which the tops were collected together and burnt last fall. Where they were suffered to remain, at least three fourths of the wheat has been destroyed by worms; and what they have not destroyed is small and sickly—while the wheat where the tops were removed shows no mark of their ravages.

For the Farmers' Register.

OSAGE ORANGE—(*Maclura aurantiaca.*)

The following extract respecting the Maclura, is from Loudon's Encyclopedia of Plants: "A spreading deciduous tree, about twenty or thirty feet high, with a yellow axillary berry, the size of an orange—nearly as succulent, and said to be as agreeable, when fully ripe."

The fruit is beautiful, and tempting to the eye, but disagreeable to the taste. It is, properly speaking, a compound berry, or berry-like aggregate—growing on very short peduncles, and attaining at maturity, a considerable size. It is globular in its form, with a warty surface; of a pale yellow cast, and rather fragrant than otherwise. A tree growing in my garden yielded this year about one hundred and fifty—many of them weighing eighteen or nineteen ounces.

The berries are formed at the axils of the leaves, and when they are as large as sycamore buttons, which, in that state, they exceedingly resemble, the pistillate organs become fully developed. These organs are filiform; like the silk of Indian corn, very numerous, and about an inch in length. The seed, however, are frequently abortive, owing probably, to the partial fructification by the pollen from the staminate plant.

The branches of the tree are armed with a number of very rigid spines, which have induced many persons to suppose it may be profitably used for hedges. It flourishes in almost any tolerably fertile soil—is extremely hardy, and with sufficient clipping, it is highly probable it may become valuable for that purpose.

It has also been suggested, that the Maclura might be usefully employed in the arts. The whole tree, including the fruit, abounds in a thick milky fluid, which might doubtless be converted into caoutchouc. It readily assumes a viscid and elastic consistence when exposed to the air. This gum, however, is obtained in such immense quantities from South America, and at so cheap a rate, that it may not be profitable to cultivate any of our plants for the purpose of obtaining it.

T. S. P.

THE GREAT POPLAR OF DINWIDDIE.

To the Editor of the Farmers' Register.

Amelia, Nov. 20, 1835.

Your complaint in the last number of the Register, of the want of communications of matters of fact for your work, will excuse my sending you for insertion, an account of a tree growing near the borders of this county, (in Dinwiddie, on the lands of John Hamblin, Esq.) It is a poplar (*Tulipefera Virginiana,*) perfectly sound, straight, and flourishing; measuring thirty-four feet six inches round the body at six feet from the ground, and forty-three feet eight inches at three feet from the ground—its height to the first limb ninety feet, without a limb, knot, or any irregularity whatever, up to this first limb—and is indeed the most beautiful and remarkable tree I ever saw, or read of in this country. I understand the late Bishop Madison once visited this tree, at which time its dimeter at three feet from the ground was thirteen feet. If so, its growth within the last thirty years has been considerable. The owner has cleared the land around it, and it stands in solitary grandeur. It is remarkable that no one approaches it without disappointment. Until you are very near to it, you are not at all struck with its enormous size and height. Nor indeed, when at it, can you believe it is so high to the first limb, until you make the effort to throw to it, which very few men can do.

In the Memoirs of the Philadelphia Agricultural Society, there are accounts of several remarkable trees in th this country—but I believe none of them, taking size, height, soundness and beauty together, equal this.

A SUBSCRIBER.

From the New England Farmer.

LARGE AND SUCCESSIVE CROPS OF INDIAN CORN, RYE AND HAY.

The following system of cultivation, by which three valuable crops, of Indian corn, and rye, and clover, may be obtained in two years, I would recommend as highly deserving of trial by farmers generally.

While once on an excursion, on the river Merrimack, and at Haverhill, I was politely shown, by Mr. David Howe, his spacious and well stored barns, and large stacks of hay, the produce of his extensive and fertile fields, lying on that river, which were cultivated by this same, or a very similar mode.

In the spring of the year early, or what would be preferable, in the course of the preceding autumn, or winter, the manure, in a suitable quantity, is applied equally over the whole surface of the

field, and intimately incorporated with the soil by repeated but not deep ploughings and harrowings. At the suitable time for planting, the whole field is again ploughed and furrowed, in rows four feet asunder, and again cross-furrowed in rows at the same distance, and the corn is immediately dropped in the hollows, which are formed by the intersection of the cross-furrows, and covered to the usual depth.

At weeding time, the corn is earthed up a little, and nearly to a level with the surrounding earth. It is twice hoed afterwards at the suitable periods, but never hilled. At the last hoeing the ground is rendered perfectly clean and level in every part. Winter rye, and clover, and other grass seeds, are now sown over the whole field in suitable quantities, and covered by drawing a bush harrow between.

In autumn a large crop of corn may be expected, and in winter when the ground is frozen, with a well sharpened hoe, the stubs of corn are cut close to the surface. Early in the next summer, the rye is reaped, yielding a good crop, and at midsummer, when the heads of the clover are half turned to a brown color, the whole fields, clover and rye stubble intermixed, are mown; the whole together constituting a large crop. The rye stubble absorbs the juices and the flavor of the clover, which it retains, thus becoming highly palatable and nutritious, and forming, when all are well made, a large amount of food, of a quality superior for horses, and other domestic animals.

Thus are three crops produced in two years, and on the same ground, where, ordinarily, but two crops are yielded, and all with a diminished amount of labor and expense.

The clover being a biennial plant, a large crop of hay is produced in the third year from the other superior kinds of grass which were sown.

It is admitted that where large crops of Indian corn are desired, *hilling up* should never be practised, but the ground in all the latter stages should be preserved perfectly level, neither should the ground be ploughed after the first hoeing, but only harrowed lightly, or slightly stirred with the *cultivator*, an admirable instrument, intermediate between the harrow and plough; that the roots which will be found extending at a little distance beneath the surface, in every direction, may be suffered to remain, proceeding unmolested.

The rye, and the clover, and other grass, serve as a mutual protection to each other, during the severe and open winters.

Very respectfully, your friend,

WILLIAM KENRICK.

Nonantum Hill, Newton, Nov. 26th, 1835.

THE FARMING AND GENERAL ECONOMY OF THE SHAKERS.

From the New York Farmer.

[We feel the more gratification in republishing the following notice of the admirable habits of a remarkable and singular community, because the views agree precisely with our own, founded upon a more hasty visit and inspection, a few years ago. The writer who here speaks so much in the spirit of toleration and benevolence of the Shakers, is the Rev. Henry Colman, of Massachusetts, a distinguished agriculturist, from whose communications to other journals, extracts have frequently been placed before our readers.

In their government and domestic economy, the Shakers furnish an admirable study for the scientific agriculturist, and a striking illustration of some of the important doctrines of the political economist. They exhibit the most distinguished success in farming, and of the power of accumulating capital, founded on scanty means, and carried on in spite of various unfavorable and adverse circumstances. The only secret of their success is, that *nothing is permitted to be wasted*, of time, labor, or capital—and they prove by the *results*, that where every little matter tends to the same good and general end, that profit, comfort, and wealth will surely be obtained. The Shakers are the best farmers and economists of our country—and their separation of the sexes serves to cut off entirely from themselves, and also in a great degree, from the surrounding population, the evils of pauperism. However foolish and unnatural their laws and customs may be deemed, they work well, in several ways, for the good of the country at large. Considering the society merely in its relation to national economy, it would be a blessing to our country if Shaker settlements could be extended to every county. There would be no danger of the members becoming too numerous—and their singularities might well be excused, and submitted to, by society in general, in consideration of their being truly the best working bees in this world of drones.]

The nearest approach to what may properly be denominated pattern farming, as far as my observation extends, is to be found among the Shakers. With two of these establishments I have been somewhat familiar; one at Canterbury, N. H., and one at Hancock, in Massachusetts. To a mind pleased with the most exemplary industry, sobriety, good order, neatness, and exactness, nothing can be more gratifying. Of their religion I shall say nothing, farther than to remark that there must be some good in a religion from which so many good fruits arise. Every man's religion, except so far as he may injure his neighbor's peace, or disturb the public tranquility, is, in my humble opinion, an affair entirely and exclusively his own; and on the same grounds, on which I claim freedom for myself, I am entirely satisfied, that these upright and peaceable communities should enjoy their liberty. But their industry, economy, neatness, and good management are no where exceeded; and above all praise.

The farm, occupied by the community at Canterbury, comprehends two thousand acres in one body, and five hundred in out lands. It is situated on a high and broad hill; and the buildings, which are remarkably neat and commodious, are visible at a considerable distance. The public road runs through the centre of the farm; the lots are well divided by good and substantial fences; the gates are neatly painted, and the roads kept in the finest condition. Their first object appears to be to raise for themselves a comfortable, I had almost said, a luxurious subsistence; and beyond that the surplus is sold either in a raw or manufactured form. Their grass fields are perfectly clean; not a stone, not a stump is left standing, not a weed is suffered to grow by the wall side. The land here is of an inferior character by nature; cold, gravelly, and

clayey, and hard to work; but cultivation perseveringly and judiciously applied, has rendered it comparatively rich and productive. I was curious to come at the amount of crops by some better authority than by conjecture; and one of the principal trustees was kind enough to communicate some facts, which I deem instructive.

From a piece of grass land of twelve acres near the principal dwellings, they usually, and upon an average, obtain twenty-eight tons of hay per year; and in one year they obtained, accurately ascertained, thirty-eight tons of good English hay. This land has been forty years uninterruptedly in grass; it is manured regularly and copiously every second year, and a spike roller is used upon it with great advantage in the spring. Their crop of oats this year, upon ten acres, averaged sixty bushels to the acre; and they spoke with approbation of the Tartarian, or as some call it, the one-sided or horse-mane oat. They have been many years in the use of the revolving horse rake, which they make with admirable neatness, pointing all the teeth with iron; and for the sake of cleaning the field after the horse rake, they use a hand rake, the head of which is about five feet long, and which is made fast to the handle by two long iron rods. Where the grass is thin this rake is easily managed by one man, and a great deal of work is done by it.

Their pig-stye is well worth a visit for the neatness, yes, the neatness of a pig-stye! and the admirable and happy condition of its tenants. Twenty or thirty swine, in clean swept styes, whose average weight at killing time will be between four and five hundred pounds, is a sight which Parson Trulliber, in Joseph Andrews, would have looked upon with ecstacy. The whole care of the swine in one building devolves upon one man, whose feeding tubs, and pails, and dippers, and cloths, and brooms, were as exactly arranged as in any lady's kitchen. The troughs are projected in front of the styes; and are closed by a swinging cover. When they are to be fed, this cover is bolted down to the inner side of the trough, so that it may be cleaned, and the food put in, without any interference from the hungry expectants, who are not suffered to come to the table until every thing is ready; when the swinging cover is raised and bolted to the outer edge of the trough, to which they then have ready access. I hope I have made this arrangement intelligible, as it is decidedly the most convenient I have ever seen. Intimacy commonly produces attachment; and I was curious to know of the respectable old man, who took care, if he did not become fond of them, and feel some reluctance to having them killed. Nay! nay! says he, from which I was compelled to infer that the poor hog is actually beyond the pale of human sympathies. Why is this? have they no virtues? if they have, they remain to be developed; have they no moral sense? it seems to me, nothing which approaches to it; in this respect they appear to stand almost at the lowest round of the ladder in the animal creation; and last of all, whether they have virtues or moral sentiment or not, they certainly, to use the current Yankee phrase, "they certainly have no manners." This seems to exclude them from all courtesy, and to shut up even the compassions of a "friend" towards them. I have only to add that the food is always cooked, and that the Shakers consider a portion of rye mixed with corn as very much improving their food. Their experience leads them to the conclusion that they would prefer to buy rye at a quarter of a dollar more a bushel than corn, to mix with corn in equal parts, than to give their swine Indian meal alone.

Their dairy is extensive, and in its interior arrangement is most admirable for its order and neatness. Their butter was very superior, and their cheese, I am told by those who can judge of it, equally to be commended. A little contrivance for turning their cheeses, which I cannot, I fear, describe so as to render intelligible, but by which the board on which the cheese is placed is suddenly inverted by a spring, was ingenious, and made it easy to manage the largest cheeses. I visited at milking, one of their yards of forty or fifty cows, whose appearance and product were good. In this part of the country, the season has been universally unfavorable to dairy products, A few years since, they obtained an improved Durham short-horn bull, reputed of pure blood, and a descendant of Admiral; and a large proportion of their cows are half-blood of his stock; but the cross has not been attended with any particular advantage in respect to milk.

They have various contrivances for facilitating labor; among others, by means of a windlass, a swinging beam, and some large iron hooks, they are able to take a load of hay from the cart at one lift, and deposite it in the mow. Their situation afforded no natural water power; but by the erection of a dam between two hills, and turning several springs, they have formed an artificial reservoir, or head of water, which affords a supply for all their purposes; and this water is used six times before it reaches the foot of the hill. They have on the stream a thrashing mill, saw mill, corn mill, bark mill, and other works. Their thrashing machine is of their own invention, and has evidently furnished the model of many of the machines for which patents have been taken out.

They have a very fine vegetable garden, and raise a great amount of seeds for sale, and likewise a botanical and medicinal garden; and dry and press great quantities of culinary and medicinal herbs, which are disposed of in different parts of the country to advantage. These establishments are also managed with exemplary care. Their flock of sheep is comparatively small, chiefly of the pure and mixed Merino. The yield of wool is over four pounds, but it is not washed upon the sheep's back, as they deem it injurious to the sheep. They have a small flock of Dishley or Bakewell sheep, which they are inclined to dispose of; as they consider them as less hardy and not so profitable for their purposes as the Merino. I give these opinions of theirs, which perhaps are mere prejudices, without comment.

The Shakers' village at Hancock and Pittsfield, Mass. is a smaller village than that at Canterbury; and their operations are chiefly confined to providing for the subsistence of the family, to some few manufactures, and to the raising of garden seeds. In point of soil, the location is not very eligible; but there are throughout the whole establishment the same order and neatness, the same admirable and ingenious use of all the means and powers for facilitating labor that come within

their reach; and the same general indications of industry and good management, which appear in the former case. The great object of agricultural curiosity at Hancock, is their magnificent stone barn, two stories in height and ninety-six feet in diameter. The great mow is in the centre, and is said to be capable of containing between three and four hundred tons of hay. The floor,or driveway, is on the outside of the circle, and the team goes round and comes out at the same door at which it enters. Several teams can stand on the floor and be unloaded at the same time. In the centre of this mow a large post or mast is erected, reaching from the ground to the roof. At the apex of the roof is a small cupola, like those usual on distilleries. Around this post, slats or strips of plank are placed at a small distance from it, to prevent the hay from coming in immediate contact, and the hay at the bottom being raised by an open frame from the ground, a perfect ventilation is formed, and the steam from the new hay is in this way effectually carried off.

Upon the whole, it is hardly possible for an observing man to visit these establishments without the highest gratification. They have very great advantages in the amount of labor, which they are able to apply to any purpose, which they design to accomplish; and this labor is a most valuable capital, though they are not wanting in pecuniary resources, their honest gains being carefully secured and managed. But they are at the same time entitled to the highest praise for their good conduct and good management. Their farms are literally pattern farms; models of careful, frugal, judicious, exact, neat, profitable husbandry. They are an exemplary and useful community; just in their dealings; peaceful and orderly in their deportment; wishing well to all men. They contribute their full share in bearing the public charges; and at the same time they throw no burdens whatever upon the public purse, and ask no favors of the public beyond simple protection. That there are some hypocrites or knaves among them, is very probable; for what community is without its corrupt mixture? but it is highly to their honor that no general charge of this nature has ever been substantiated; and that the general character of the society for honor, purity, truth, and justice, strong as has been the tide of prejudice and superstition against which they have had to contend, has remained unimpeachable. The deciples of Malthus, and the benevolent political economists of the present day, could no where expect to see in more perfect operation the great moral preventive check. To be sure, on the principles of the Shakers, the world must soon become a solitude; but there are counteracting influences in human nature amply sufficient to save us from all apprehensions of any such disastrous results. The population of the world will go on, and if, with its increase, happiness and improvement will be extended, so also must poverty, misery, and vice prevail. This peaceful community will present a refuge to many, wearied and disheartened with the cares and perplexities of life; will afford a favorable opportunity to other anxious and sensitive minds to cultivate, perhaps under very mistaken, though honest views, and extraordinary virtue, and a purity more than earthly; will open its welcome doors to many a friendless and houseless being, many a desolate and heart broken widow; and throw its protecting wing over many a fatherless child, and train him to habits of industry, sobriety, self-government, and moral purity. In all their good deeds and intentions, may the blessing of Heaven rest upon them. Whether they can sustain themselves amidst the expanding and brightening light, and the continual and extraordinary changes of society, time only can disclose. Their extinction, to say the least, would be the loss of one of the best examples of general sobriety, industry, harmony, good order, and equity, which can be found in the world. But I fear I may have travelled too far out of the record. I had designed to speak of them only as an agricultural community; and as such their management is in every respect an admirable pattern.

H. C.

Meadowbanks, Oct. 15, 1835.

EFFECTS OF BLACKSMITHS' CINDERS AS MANURE.

To the Editor of the Farmers' Register.

In the course of almost every farmer's agricultural experience, things are brought before his mind by circumstances, which, if properly investigated, might be useful to the public. Such matters generally die with the discoverer, and some of them, perhaps, are re-discovered an hundred times, before they become fully the property of the public. Agricultural societies and journals often save from oblivion, valuable facts and opinions which might otherwise be lost. If each one who thinks he has observed any thing worthy of preservation, would lay it before some society, or the editor of some well conducted journal, we might occasionally obtain information capable of extensive application,in matters,thought by the original observer to be contracted in their nature. This formal introduction is not designed by the writer, as a prelude to the annunciation of any important discovery of his own—it is rather intended to elicit from others information, which diffidence may have led them to withhold, and as an apology for troubling you, sir, with a matter whose importance the writer does not feel capable of deciding.

Some twelve or fifteen years ago—the exact period is forgotten—I spread upon a small piece of land, perhaps about two acres, a large pile of cinders, which had long been accumulating, at the end of an old smith's shop. At the time this was done, the chief benefit was expected from some remains of sulphureous matters which might be in the material, as much pit coal had been burned in the shop. I also hoped, that simply blackening the soil would improve its products by enabling it to absorb more heat. The next crop was fine, and it has continued to produce wonderfully ever since. For the last ten years, though very slightly cultivated, it has yielded a good crop of corn, except one year, when it brought a fine crop of oats. I do not recollect that I ever put on it any manure, besides the cinders, and I hardly suppose that the tenants, who have occupied it for the last nine years, have burdened it with manure. Indeed I do not know, that they have manured it at all. This little lot is considerably exhausted by scourging treatment; but I do not know, in this vicinity, a piece of high land of the same size, to which, if

moderately manured, I would sooner trust, for a fine crop of any kind.

I have felt much at a loss to account for the cause of this increase of fertility from the use of blacksmith's cinders. Since learning a little more, however, of the chemistry of agriculture, from your writings, and from other sources, I begin to suspect that I have learned the secret. Blacksmiths, while heating their iron and steel, use sand largely, by throwing it on the fire and dipping the metal to be operated on in beds of it, to prevent oxydation. There is some potash also, probably, formed from the ashes of the coal exposed to extreme heat. Thus, we have the materials for the formation of the silicate of iron and potash, which seems to be the acting manure, in the famous Jersey marl. Of course, if this notion be correct, every blacksmith, while forming tools wherewith to work the land, is unconsciously preparing a most excellent material for its improvement.

It is true, that no great surface of land could be manured by shop cinders, if those from every shop in the state were carefully used. But in agriculture, small matters are not to be despised. Enriching a few acres in every neighborhood, throughout the country, by means heretofore neglected, is certainly a matter worthy of attention. But besides the cinders from smith shops, a vast amount of a similar material may be found, in the scoriæ from the various kinds of iron-works in the country. These, probably, would be more valuable than ordinary shop cinders, inasmuch as a great deal of lime is used as a flux in iron-works. I have an intelligent and public-spirited friend, largely engaged in iron-works, whose attention, I can almost pledge, to testing the value of such scoriæ as manure, should you think this matter worthy of notice in the Register. It should, perhaps, be noticed, that as the materials alluded to above, belong to the class of stimulating manures, they will, of course, need some aid from those which are nutritious.

W. S. MORTON.

ON PLANTING THE SWEET POTATO.

To the Editor of the Farmers' Register.

The mode I am about to relate, was told to me some time since, by a gentleman of this neighborhood, and may be the common one pursued by many of your readers and subscribers; but it is one very little practiced, or known, so far as I am informed, in this part of the country—and therefore may be of some benefit, to some one of your numerous readers.

Early in the spring, procure your seed potatoes—then prepare a bed from four to six feet in width, in any well pulverized earth, (say your garden,) by raising the earth about a foot above the level of the surface of the earth. On that put a layer of your potatoes, two or three inches thick—then a layer of fine moist earth, the same thickness, and so on with a layer of potatoes and layer of earth, until you have put as many down as you want to plant. The bed must be kept moist by artificial watering, in the absence of rain. Examine the roots occasionally, so as to ascertain when they have arrived at the right stage for planting, which is, when the sprouts are about an inch long. Then prepare your ground well, when it is moist, where you intend planting; then take out of the bed and plant immediately. Be careful not to break the sprouts.

By this very easy and simple mode of preparing your seed, you will have potatoes from three to four weeks earlier than you would have if planted in the usual old way—that is, in the hills when they are first taken up in the spring.

M.

From the New York Daily Advertiser.

NEW ENGLAND TOBACCO.

It is surprising to see the great quantity of tobacco that is constantly arriving from Connecticut River. The Bunker Hill brought down last trip, fully equal to fifty hogsheads. We learn that it is not only cultivated extensively along the banks of the Connecticut River, but that it commands a much higher price in that market than any other American tobacco.

OF THE EFFECT OF GYPSUM ON TOBACCO, AS TESTED BY A SERIES OF EXPERIMENTS

Read before the Agricultural Society of Charlotte, and ordered to be published in the Farmers' Register.

At the last meeting of the Society, I communicated the following facts in relation to the effects produced by the application of plaster on my crop of tobacco, then growing. Owing to the difficulty of obtaining plaster, its application was delayed until some time between the 10th and 20th of July, when the larger number of the plants had been topped. It was applied, by dropping from the fingers on the top of the stalk, or in the bud when not topped, so as to be distributed along down the stalk and upon the stems of the leaves where they join the stalk, to the amount of about a half an egg-shell to each plant, leaving several rows through different parts of the lot, unplastered. On the evening and night after we finished this process, there was a fine fall of rain, after which I did not again see the lot until the eighth day from the time the plaster was applied, when to my astonishment, the whole lot, which had before looked faded and sickly, had assumed a fine healthy and vigorous growth, with the exception of the unplastered rows, which still retained the yellow and unhealthy appearance. The change produced by the plaster was so obvious and striking that I carried several persons to see it, who readily pointed out the unplastered rows. Among others, some of my fair friends, who, (however acute they may be in detecting the difference of quality of silks and satins, would not be supposed to possess any extraordinary scrutiny in regard to the quality of tobacco) as readily pointed them out. The difference, though obvious in the size of the tobacco, was more so in the color, and perceptible to the feel with the fingers, the leaves of the plastered tobacco evidently having more "body." The difference has existed to the present time, (the 20th of August,) and can be seen as far as the spaces between the rows can be distinctly marked by the eye, but is not altogether as striking as for a week or two after it was first noticed—and although evident improvement has been produced throughout my crop by the use of plaster, yet, (owing probably to the fact, that the remainder of it was on land cultivated in tobacco last year, and of course, clear of litter, and that the plaster was

applied after the rain,) the effect is not as obvious in any other part of the crop as the lot referred to. Part of the lot on which my experiments were tried, has been cleared six years—cultivated the first three in tobacco—the fourth in wheat, seeded in clover—rested the fifth (except a small part mowed for hay) and ploughed last fall, with a heavy coat of clover and broom-straw mixed. The other part has been cleared much longer; cultivated repeatedly in tobacco, seeded in wheat and herdsgrass, and had remained five or six years in turf—though for several years past, covered with a light coat of litter.

On communicating the above facts to the society, I was requested to test the effect of the plaster by weighing the plants, both in the green and cured state, and report the results. Accordingly, I submit the following, as ascertained by the most careful personal investigation I could make.

The first experiment, was made on two rows, side by side, running nearly east and west on a gentle declivity of a southern exposure, with a soil of gray sandy loam, based on yellow clay—containing each forty-two plants. A man preceded one with a knife, passing on between the plastered and unplastered rows, with instructions to cut every plant thoroughly ripe. In the plastered row he cut sixteen plants—in the unplastered ten; showing a gain in favor of the plastered row a difference of four plants. As soon as the plants had completely "fallen," (or withered,) I weighed the ten cut from the plastered row, which weighed 20 lbs. I then weighed ten from the unplastered row, which weighed 19 lbs.—showing a gain in favor of the plastered row of only 1 lb.

The second experiment was tried on two rows extending across a hollow, or drain, through the clovered part of the lot, containing two distinct soils, one which is the theatre of this experiment precisely similar to that on which the first was tried; the other beyond the hollow, of a chocolate color, based on fine red clay. The plants were cut and weighed, as in the first experiment, with a view to make the test as accurate as possible, and resulted thus: the ten unplastered plants weighed 15½ lbs.—the plastered, 23¼ lbs.—making a difference in favor of the plastered plants of 7¾ lbs.

The third experiment was made in the same rows on the other side of the hollow, in the chocolate colored soil, with the red clay base, with the same care as the others, and resulted as follows: The ten unplastered plants weighed 15½ lbs.—the ten plastered plants 20¼ lbs.—leaving a difference in favor of the plastered plants of 4¾ lbs.

I then hung these several parcels on separate sticks, in the usual manner, (except that they were numbered, to avoid mistakes,) and placed them side by side in the centre of the barn, on the first firing tier, (so that they might be equally cured,) and after curing them in the usual way, stripped and tied them up in bundles as for pressing. They were then separately weighed, and the results follow:

	lbs.	oz.		lbs.	oz.		lbs.	oz.
The 1st experiment—unplastered,	2	13	Plastered,	2	15¼	Gain,		2¼
2d do do	2	9	do	3	10	do	1	1
3d do do	2	5	do	3	4¾	do		15¾
	7	11		9	14			

Total gain in the 30 plants,		2 3
Estimated gain in a crop of 10,000 lbs.,	lbs. 2215 oz. 3	
That sold at $8 per hundred will be $800. Gain in the sale,		$177 20
Off for 4 barrels plaster at $3 per barrel,		12
Nett gain,		$165 20

ANDERSON C. MORTON.

EXPLANATION AND CORRECTION.

To the Editor of the Farmers' Register.

Orange, 18th Nov., 1835.

In my communication published in the 7th No. of the Farmers' Register, at page 444, on the improvement of worn land by clover and plaster, I observe in a note a query by the editor, viz: "Is this great improvement of the poorest forty acres known from experience?" In answer to this query, I must remark, that I did not intend to say this would be the result if there was a very great difference in the quality of the land, but I can safely say that I have experienced this to be case when the difference was not very great, and all of the land capable of producing a good crop of clover, with the use of plaster—and provided the greatest proportion of the clover was suffered to remain on the land and rot, and the last crop of clover ploughed under in the fall or winter before the land is put in corn. You will perceive that the forty acres will have had, in three years, only one grain crop, and two ameliorating or clover crops; whereas, the eighty acres will have had two grain crops, and only one ameliorating crop.

CATLETT CONWAY.

P. S. There is a mistake in the table attached to the piece above alluded to, viz:—the rotation of the second field commences with "80 acres in wheat after clover, 40 in wheat after clover." It should be "80 acres in wheat after corn, and 40 acres in wheat after clover"—else it would appear as if the whole field of 120 acres was clover fallow.

C. C.

EXPERIMENTS IN GATHERING CORN FODDER, AND THE DIFFERENT EFFECTS ON THE GRAIN. FACTS AND OBSERVATIONS IN REGARD TO CALCAREOUS AND OTHER MANURES.

To the Editor of the Farmers' Register.

Your call for facts in the November No. of the Register, has induced me to submit the following to the inspection of the public, which was originally intended to be the commencement of a series of experiments to satisfy my own mind, whether or not injury resulted to the grain of Indian corn from depriving it of its tops, as well as stripping it of the blades below the ear.

On the 13th of September, 1834, I selected five adjacent rows of corn, of similar appearance, planted on the same day, in rich bottom land, and cultivated alike throughout the summer. In each of these rows I selected 50 hills, passing by such as had more than one ear, and rejecting all whose ears, when examined attentively, did not seem to be of the same kind. It stood one stalk in a hill; three feet by five apart, having inadvertently been left thinner than the corn in the rest of the field. This corn was quite green, being still in the roasting ear state, though most of my neighbors at the time had nearly finished gathering fodder, and one of them had nearly finished cutting tops. The first row was left in a state of nature, with its blades, including the tops, entire, intending that this should be the standard by which I should judge of the loss or gain arising from each different method of treatment. The second row was deprived of both fodder and tops, which is the usual mode in Virginia. From the third row the fodder alone was pulled, which was done after the customary manner, i. e. all the blades below, and one above the ear. From the fourth the tops alone were cut—the fodder left untouched. The stalks in the fifth row were cut up near the ground, and placed in a shock. At the end of each row was left an indefinite number of stalks in their natural state—as those were in the row which it has pleased me to call my *standard row*.

The 10th of November, walking in the field, I just arrived in time to save this corn from being tossed like common ears promiscuously in an ox-cart. For one of the cartmen, after having wandered over the whole field, and hauled away all that had been made, on coming to this little corner, was quite indignant to find that it should have been skipped by the corn pullers, and had commenced with his own hands making havoc among the stalks, on which I had labored myself with so much care, and had lately watched over with such parental solicitude, in order to save from the equally desolating hands of the corn pullers. On examination, I found that he had pulled off 30 ears each in two rows, and these he had mixed with other corn. Thus my experiment was cut down to 20 ears. To prevent all future mishaps, I immediately had the remainder pulled, shucked, (husked I believe they say "down east,") carefully placed in separate baskets, carried home, weighed, labelled, and put away in my study. On the 1st of October, 1835, I examined my corn, and found it much infested by weevil, particularly that from the fifth row. I had it carefully shelled in my presence and weighed. The annexed table will will show the result. In the two last columns the loss or gain per acre, will be very *nearly* seen, as compared with the product in the standard row. In this calculation I have taken 56 lbs. as a bushel.

	Weight 10th Nov. 1834.		Weight Oct. 1st. 1835 (Shelled.)		Weight of husks or cobs.		Total—October, 1835.		Shrinkage.		Estimated quantity made per acre.		Loss per acre.		Gain per acre.	
	lbs.	oz.	lbs.	oz.	lbs.	oz.	lbs.	oz.	lbs.	oz.	Bushels.	lbs. oz.	Bushels.	lbs. oz.	Bushels.	lbs. oz.
First row.—Standard. - - - -	14		10	2	2	5	12	7	1	9	26	1 2				
Second row.—Tops cut and fodder pulled, -	11		7	14	1	14	9	12	1	4	20	23 7	5	46 9		
Third row.—Fodder alone pulled, - -	13		10	2	2	5	12	7		9	26	14 2			2	24 4
Fourth row.—Tops cut, - - - -	14	8	11	1	2	5	13	6		9	28	38 4				
Fifth row.—cut off, - - - - -	15	8	10	14	2	5	13	3	2	5	28	11			1	52 14

The result of the experiment in the second row, is in accordance with what I had expected, and with what seems to be the opinion of all thinking men. From this, some idea may be formed of the immense annual loss to the corn crop in Virginia, from the general practice of stripping the blades from the stalks, and at the same time depriving them of their tops. The fodder from the 50 hills in the second row, weighed on the 10th of October, 1834, 5 lbs., which would be 290 lbs. per

acre—that from the tops of the same row after being stripped, weighed 1⅔ lbs. or 96 lbs. to the acre, in the whole 386 lbs. In this county, new fodder is generally sold at the stack for 50 cents per hundred—386 lbs. then can be bought at $1.63—whilst the corn, when old, sold for many years past at not less than $3 per barrel. By comparing experiment second with experimeut first, it is seen that by cutting tops, and pulling fodder, 5 bushels, 46 lbs. 9 oz. of grain is lost per acre. This at $3 per barrel, is worth $3.50—which is expended in order to get $1.63. But it is not clear that the labors expended in gathering fodder, is not worth as much or more than the fodder gathered. It becomes the Virginia farmers then, to reflect,that for the fodder and tops he is about gathering, he will throw away $3.50 for every acre in his field.

The product of the third row did not fall below the standard. In this row the tops were not cut, but the fodder was pulled; hence the great utility of the top may be seen.

The fourth row, in which the tops alone were taken off, has turned out entirely different from what I expected. I had been led to believe, from various communications, but particularly one from the pen of Mr. Clarke of Northampton, published in Vol. I. p. 70, of the Cultivator, from the New England Farmer, that the loss from topping corn was very great. The experience of Judge Buel and Lorrain, with that of many anonymous writers, all go in confirmation of this fact. It is then with extreme distrust, that I venture to differ from that opinion, particularly, since that difference will be founded upon this one isolated experiment, and that too, tried on so small a scale. But, since what will hold good as to 20 ears, will to 20,000—and as I am convinced of the perfect accuracy with which this experiment was conducted, I know not what to attribute this increase of grain to, unless it be to the cutting off the tops, particularly as it is more than probable that the product of these five rows would have been exactly the same,had they been similarly treated. I infer this, first, from the great sameness in the weight of the husks or cobs, looking as if they were cast in the same mould—second, from the like number of ears taken from stalks at the end of each row, whose blades and tops, as I have stated, were left untouched, all weighing in the same notch, when suspended from the hook of a steelyard, with ¼ lb. notches. The only difference was that the ears from the second row were, in common parlance, a "little more down weight" than the rest. Reasoning therefore from the experiment detailed above, I should say that the topping of corn, provided it is not done before the formation of the grain, is attended with a beneficial effect. It may be, that the top having performed its functious in the support of the tassel, which impregnates the ear, becomes a useless, and possibly a hurtful appendage. For it seems to be a settled principle in vegetable physiology, that after fructification has commenced, no further sustenance is drawn from the soil, but that all the juices which are necessary to the filling up of the grain have been elaborated, and are at this time in the roots and stalk. And I should infer that every thing that is requisite to save those juices from fermentation is, that there should be a sufficiency of blades through which they may circulate, and be exposed to the atmospheric air, by which they are deprived of their noxious principles, and thus fitted to support vegetable life, exactly as the blood is acted on through the instrumentality of the lungs, in the human system. But should these precious juices, (of which, after fructificatiοn has commenced, it is admitted there can be no further supply,) have too great an extent of surface over which they may circulate; the consequence is that they will be exposed to inevitable loss from evaporation: while the now useless top being cut off, the very juices that would be expended in its support, or lost through its pores, being diverted from their course, will gently ooze through the cob and become a part of the grain. Each and every part of the maize plant has its different functions to perform, and it seems to be the peculiar office of the top to provide for the maintenance and support of the tassel, and it is in that way alone that it indirectly contributes to the general welfare, and not in immediate preparatiοn of food for the grain. In proof of this, I have frequently seen,on path sides, stalks whose tops had been drawn out while putting forth their tassels, bearing lustier ears than any of their neighbors, whose tops were entire. Nor is this on the principle of increase of size from emasculasion, as I have a vague idea that the editor of the Farmers' Register has somewhere asserted. This reasoning, though it may be just when applied to the increased size of the stalk, yet the analogy is lost when extended to the ears. This last proof, however, may be said to be taking the very question under discussion to prove itself, but it is only taking a fact that may have come under universal observation, to prove that the same fact may exist under different circumstances.

There is no plant sufficiently alike the maize that I know of, to support my reasoning by analogy, but in many of these of different genera, it holds good. Among the annuals, the product of cotton is notoriously increased by topping, though I do not know that the increase extends to the seed: this is the case with most or all of the cucurbitaceous plants, as cymblins, cucumbers, melons, &c. &c. Among perennial, the vine, the currant, the raspberry, &c. &c. are pruned and topped with signal benefit.

There is one argument which I am afraid the "followers of nature" will bring forward, that by a certain class, is considered as sufficiently great to upset the most potent reasoning, much less the fabric that I have attempted to rear on so tiny a base—to wit, that since the cutting off of tops causes a greater quantity of corn to be made, why is it that our Maker, (without irreverence I say it,) after the top has performed its office, does not cause it to wither and die, and drop off just above the ear? To these gentlemen I will simply observe, that never as yet has the Almighty, that I have heard of, (without irreverence I say this,) been seen to plant corn in drills, to hoe it, or to plough it, except through the instrumentality of man, and yet even they will not deny but that more corn will be made in this way than if they were to tread too closely in the footsteps of dame nature, and suffer whole ears of corn to plant themselves beneath the stalks where they grow—to stand without thinning, and to battle it out, alone and unaided, with the weeds, the crab grass, and the sorrel.

In this communication there is apparently a contradiction, and that too of so stubborn a nature

that, to borrow a figure from yourself, Mr. Editor, I am afraid that I shall be unable even to "*neutralize*" it: it is this—in commenting on experiment third, I showed the great utility of the tops in feeding the grain of that row, just as much as the tops and fodder both did in the standard row: and yet in the whole of a very long argument since, it has been my whole drift and aim to prove that they were not only of no utility in feeding the grain, but that they were absolutely hurtful, wasting the food that was laid up for the use of the grain. These things conflict more in appearance than reality: for it should be remembered that I have not denied that the tops nourished the corn *when alone* on the stalk, but have only asserted that they take from the support of the corn, when fodder and tops *both* are left on the stalk. This will be evident by contrasting experiment first and fourth, for in the first where there were tops and fodder both, the corn would have made to the acre only 26 bushels 14 pounds—whilst the fourth, in which the tops were taken off and the fodder left entire, yielded 28 bushels 38 pounds—thus clearly proving that the tops had either wasted, or eaten, themselves, (no matter which, so far as the corn is concerned,) the food that would have raised 2 bushels and 24 pounds of corn. The only thing that can be deduced from their taking such good care of the corn when committed solely to their charge, as in experiment third, so that it did not fall below the standard, as did row the second when left destitute of both fodder and tops, is, that they are like some shepherd's dogs that I have read of, who would invariably eat the sheep when left to the care of the shepherds and themselves, but would guard them faithfully when entrusted to themselves alone. To be serious—as in organized beings, when one organ is destroyed, its place is in a great measure supplied by another—e. g. when persons have lost the use of their hands, they have been known to make up this deficiency by using their feet and lips, so as to sew, to knit, to cut most beautifully in papers, performing many mechanical operations with skill and dexterity. The loss of eyesight has been supplied by the senses of touch, and of hearing, &c. &c. And in plants, when the stem is broken from the root, in many instances the branches take their places, even becoming converted into radicles: so in the Indian corn, when the lower blades, in which I contend the sap is principally prepared for the nourishment of the grain, are stripped off the upper ones, in a great degree assume their office, assisting in the circulation of the sap, they so far change their nature as to absorb more from the atmosphere than they give out by their pores.

To reduce these facts and deductions to practice, (which, however, I should not advise any one to do, without further experiment, from their being so contrary to received opinion,) it seems to me that a farmer would get most grain to top his corn, and let his fodder stand. But since Eastern Virginia is not a grass growing country, and our horses and mules cannot live upon grain alone, it is a difficult matter to get a substitute for fodder, particularly for those who will not, or cannot raise clover. Farmers in this situation should make it an invariable rule when they pull their fodder, to leave the tops standing, and *vice versa*, in cutting tops they should suffer the lower blades to stand: in no case whatsoever should the same stalks be deprived of both fodder and tops.

But in my opinion we should be great gainers in changing our practice at once, and apply the hoe to the root of the stalk about the middle of September, with all its fodder and tops entire. The difference in grain between this mode of topping is only 27 pounds per acre, which is worth about as many cents, while the value of the fodder is to be taken in consideration, which can be saved nearly as well by cutting down the stalks, as by stripping the blades. This was evident from experiment the fifth, for when the corn was gathered from that parcel, on the 10th of November, the fodder on the stalks was sweet and well cured, though it had stood exposed to a great deal of rainy damp weather, which prevailed throughout the latter part of September, and first part of October of that year. The great saving of labor in gathering your fodder, your tops, and cutting down your corn (which has to be done soon or late) by one operation, should likewise enter into the calculation. Besides, you gain a very valuable food in your stalks, by cutting them while teeming with saccharine matter. This practice is not novel: it is carried out to a great extent in the northern states, and the experience of your correspondent Agricola, goes to prove that it is equally successful, as far south as Alabama. In addition to this, those farmers who follow the absurd practice of sowing wheat after corn, will be enabled by it to clear their ground for the wheat crop much earlier than they otherwise could, which is by no means an inconsiderable object in some years. In fine, to cut short fifty reasons that are springing up in my mind in support of this method, I see no earthly cause why the cutting up of corn before perfectly hard should not be attended with the same beneficial effects as it obviously is in the wheat and rye crops. This has been proved by the experiments of Monsieur Procquez, in an article translated p. 759, Vol. II. Farmers' Register from the *Journal d' Agriculture etc. des Pays-Bas.*

I will take this occasion to mention two facts, coming under my observation, which seem to me to conflict with some of the principles advanced in the Essay on Calcareous Manures. In the month of October walking by a brick-kiln that had been burnt the preceding year, and from which nearly all the bricks had been removed, I was surprised to see a most luxuriant growth of sorrel (*Rumex acetosa*) on the outer wall of the kiln, two feet from the ground. I suspected that its roots drew nourishment from some particles of soil, or charcoal that might have accidentally have lodged between the bricks. But upon examination, I found crumbled pieces of brick on the surface of the wall, through which the roots penetrated, without paying much attention to them, only now and then sending out a few fibres to forage. On coming to those that were sound, they adhered to their sides, after penetrating the crevices between the rows and layers: nor was there a particle of soil, or any thing else, perceptible to the naked eye, that could have afforded them food. After removing the sound brick, the entire plants came away, without any thing at all adhering to their roots. The earth of which the bricks were made, was taken three feet from below the surface—and even had there been any vegetable acid at so great a depth, I presume that it would have been ex-

pelled by the heat of the fire used in burning the brick—while the pyroligneous acid engendered from the decomposition of the wood by the fire, would not have remained adhering to the bricks, for which it has no chemical affinity, exposed for twelve months to the winds, and four months to the rains. If this be so, whence could this plant have drawn its acid properties? The constituent principles of the oxalic acid exists in the atmosphere, and it is admitted that the wood sorrel *(oxalis acetocella)* derives its acidity from the air; why then should not the sheep sorrel get its acidity from the same source? Should what I have related, afford ground for the belief that the sorrel derived its acid properties from the atmosphere in that one instance, my faith must necessarily be shaken in the very important evidence which you have brought forward in proof of the existence of acid soils, from the growth of acid plants thereon. It is not my intention to attempt to controvert your theory concerning acid soils, as I think it placed on incontestable ground; my only object, is to excite attention to the subject, so that all the facts existing in relation to it, may be made known.

My second fact is, that on a piece of land lately purchased by Mr. Thomas Roane, there is a marl bank, with large pines and broom-grass growing on it—while the marl is so near the surface as to be seen without removing the superincumbent earth, of which in fact there is little or none. I will not attempt to theorize on this subject for fear that I may expose myself to the getting of a rap over the knuckles similar to that which the unfortunate correspondent of the Genessee Farmer got, whilst wielding the pen against your "ideas about sour soils," by assuming that the "lime and gypsum, with the other peculiarities found in vegetables" were derived from the atmosphere.

Whilst my pen is in hand I feel constrained to give you a few *facts* in testimony of the truth of the principles divulged in your Essay on Calcareous Manures. In 1833, I first read the essay, and being convinced by it that farming in Virginia, with the means of marling, was not so desperate an undertaking as I had been led to believe it was, from witnessing the small crops of my countrymen in general; and not wishing to leave my native land, unless driven forth by the hand of dire necessity, I purchased a farm of 405 acres, at $5 per acre. To this I have since added about 600 acres more, at $8. (I mention the price of the land, that my fellow citizens of the north may know the cost of a farm with us—which by the way, may be bought 50 per cent cheaper now than when I purchased.) Both of these tracts superabound in excellent shell marl, which I commenced hauling out, with some vigor, on the 1st of April 1834, and by the 1st of October 1835, I marled between 430 and 450 acres, at the average rate of 350 heaped bushels to the acre. But the facts which I shall detail as coming under my observation, will be confined to abont 50 acres of the most worthless land on the farm. Its natural growth, as I infer from similar and adjoining land in wood, is red and white oak, with a few pines and black-jacks, now and then a stunted willow-oak, with an uudergrowth of whortleberries; there are slight indentations or basins frequently occurring, which hold water throughout the winter, a great part of the summer, and after every rain. There seems to be no *soil* at all; but the *ground* is of a whitish color—very miry in winter, and bakes after every shower; it is very stiff, and difficult to cultivate. The fencing had been taken from around the greater part of this land; young pines had commenced showing their heads, while the intervening spaces were covered with a meager growth of poverty grass. In the fall of 1833, I sowed fifteen bushels of wheat in about as many acres of land; twenty acres were ploughed up for corn—eleven for oats—while in the spring, four was marled, at 400 bushels per acre, manured and put in cotton. In August following on measuring my wheat, it turned out thirty-one bushels and a fraction—being very little over two bushels per acre; my corn measured eighteen and a half barrels of nubbings. I was absolutely astonished to find that the product of land could be reduced to so low a state. I have no doubt, that were any of our northern brethren to see this account, they would smile incredulously—but I can assure you that there was no mistake in the measurement, as it was made with perfect accuracy, and the land having been cultivated to the best advantage—as it was ploughed four times and hoed twice. If this picture should impress on the minds of any of the readers of this communication the magnitude of the attempt to bring this land from a state of almost absolute sterility, how much greater was the impression on my own mind, who had spied out its "nakedness, and beauty unadorned," with my own eyes—

> Segnius irritant animos, demissa per aures,
> Quam quæ sunt oculis subjecta fidelibus.

But determining to see what virtue there was in marl, I removed the stalks from the twenty acres; marled them, at 250 bushels per acre, and sowed in wheat. In Jannary I covered the whole with finely rotted manure, twenty-five tumbril cart loads to the acre; sowed clover-seed, and plastered. The wheat having been sown too thin at first, was made much more so from being killed by the hard winter, and the fly. I think the crop was shortened one-half. The quantity made per acre was supposed to be six bushels. But this I determined not to leave to "guessing"—and as there was about three acress on which the wheat seemed to be as good as it probably ought to have been throughout the whole field, under favorable circumstances, from its having been more protected from the north wind by a wood, and the earlier scattering of the manure. I had an opportunity of testing the product, by actual measurement. For this purpose, I laid off an acre with the surveyor's chain—had the wheat on it reaped, shocked, and thrashed by itself. It measured thirteen bushels and one peck—weighing 62 lbs. per bushel. This land was poorer if possible than that yielding two bushels an acre the year before. The clover took well; it grew off luxuriantly, and though this is its first year, the greater part of it headed, attaining the height of eighteen inches, and two feet: together with the clover, a fine tall growth of carrot weeds has sprung up, a thing unprecedented in the field before. But this is not all: the four acres in cotton adjoining the rest, and managed alike, except being marled earlier and more heavily, after producing me a tolerable crop of cotton, and an excellent crop of wheat, was broke up in July for ruta baga. On going out to give some instructions about placing the manure, what was my sur-

prise to see this poor stiff *clay* level, (or such as I and every body else had taken for clay) converted into a light sandy loam of a dark rich color, with scarce sufficient clay in it, to cause it to adhere, when pressed between the hands. I sowed my ruta baga seed the 20th July, and though nearly half of them died from my neglecting to have them worked soon enough, (and by the way they were only ploughed once,) yet after feeding away three-quarters of an acre, the remaining 3¼ acres made me 780 bushels. The ordinary weight was from six to eight pounds a turnip, while some carrots transplanted in the missing places attained a most enormous size, one of them measuring 14 inches in circumference.

The part in oats, after yielding but an indifferent crop, was marled in 1834, and put in corn this year—half was unmanured; the other half was manured with the half-rotted stalks from my farm-pen, mixed with coarse litter from the stable, which was ploughed under in the spring directly after being hauled out. From the latter I gathered an estimated crop of 5½ barrels per acre; the former made me three, whilst one and a half acres, marled at 400 bushels, and not manured, made me nothing. It should be remembered that the same description of land, only separated by a road, made, the year before, very little over four bushels an acre, while the part not too heavily marled, with the help of a more favorable season, brought it up to 15 bushels.

My experience adds another proof to your doctrine, that marling and manuring ought to be carried on together: yet very many pursue a different practice. One of the most intelligent farmers in Hanover marls in one field, and manures in another, where there has been no marl carted.

From a close observation of the facts that have fallen under my notice, I am convinced that the most profitable application of fine rotted manure, is on the surface, to a wheat field that has been marled, and is intended to be sown in clover; whilst your unrotted manure (I use this term because best understood in Virginia,) should be applied to marled land, intended for corn, and turned under so soon as hauled out.

I have sown clover on similar soil, managed in six different ways. 1st. On land unplastered, unmanured, unmarled. This is throwing away seed. 2nd. On land manured, unmarled and unplastered—but little better. 3rd. Manured and plastered, but unmarled—the clover stands in spots, and grows tolerably well only. 4th. Marled, but unmanured and unplastered—the clover stands better, but the growth is not so great. 5th. Plastered and marled, but unmanured—better still. 6th. Plastered, marled and manured—a prodigiously fine crop.

These few things comprise most of the "facts" that have come under my attention during the two summers that I have been a farmer. I do not know that they are worth the trouble they will cause you to have them put in print. I have others in progress which it will take years to test, and should I live, and your journal continue to flourish, (both of which may God grant) you will hear from me in due time.

WILLIAM SPOTSWOOD FONTAINE.

Montville, King William, 12th Dec. 1835.

[We are much gratified that our "call for facts" has served to elicit the foregoing statement of experiments and observations. Although the experiments on fodder were on too small a scale, and otherwise too defective, (as is frankly admitted by our correspondent,) to be deemed conclusive in their results—still they leave little doubt of the injury sustained by the usual and almost universal mode of conducting this branch of corn culture. The increase of the corn supposed to be caused by topping only, we should attribute to some defect in the experiment, unsuspected by its maker. But this, subsequent and more full trials can best settle—and it is no small merit in a single experiment, if it can assure us on *one* useful point—or even serve to strengthen greatly, a doubtful opinion. It is by such courses of experimenting accurately, and reporting faithfully, that the best services can be rendered to agriculture—and it is hoped that Mr. Fontaine's good example will be followed by many others.

With regard to the facts presented as difficulties in the way of the theory of acid soils, we have to repeat, that we are not so presumptuous as to attempt to explain every rare exception, real or apparent, that any particular facts may present as contradictory of the general laws of the fertilization of soils which have been maintained in the *Essay on Calcareous Manures*. Some of the strongest apparent contradictions, however, have, on more full investigation, been found to be in strict accordance—and so may the facts observed and stated by our correspondent. The pines growing over a marl bed probably extend their long horizontal roots to some acid earth, or possibly find it even below the marl—as do plants of sorrel which often stand on unspread heaps of marl. The growth of sorrel on the brick-kiln, may prove that the atmosphere furnishes acid to that plant—but even then, it would not contradict the doctrine of acid soils, unless, the bricks, or the soils on which common sorrel *(rumex acetosa)* was thus air-fed, *were calcareous*—which, it is presumed will never be found to be the case.

Nevertheless, we are glad to receive, and as willing to publish, facts opposed to our views, as those which support them: and our correspondent may be assured that we have neither the inclination, nor ability, if so disposed, to return to him "a rap over the knuckles," as in the very different case to which he refers—which was that of objections being made (and through another journal,) which were founded on the most gross ignorance of the entire subject.]

TO MAKE GOOD BACON.

[Under the impression that we should thereby render an acceptable service to many readers, we sought some months ago the information which has just been furnished in the following communication. The business of curing bacon for sale has long been carried on very largely in Southampton, Isle of Wight, and other adjacent counties, and the quality of the article has become celebrated under the general name of "Smithfield bacon." We are not sure that the writer of the following directions designed that his name should be given, and therefore it has been withheld. No

name would be better authority, for any statements whatever. In addition, the mutual friend through whom the communication was obtained, says in his accompanying letter, "I have conversed with other gentlemen who are well acquainted with the process of curing bacon, and all agree that these directions *in the main*, are right. Mr. —— of this county, who has a high character for making good bacon, agrees with the writer, except that the former does not suffer his pork to lie in salt more than ten days, usually. That however, depends on the state of the weather."]

From the Maine Farmer.

Agreeably to your request, of Saturday last, I proceed to make some remarks on the process of curing bacon, and which, if they are thought worthy, may be inserted in the Farmers' Register. They will be too late however, I apprehend, for the present season. It may be first premised that the curing of bacon is a practical art, which as, in this climate at least, it depends on several circumstances, and especially the varying state of the weather, can never be completely successful without the exercise of a judicious discretion. But there is no secret or mystery about it: yet many persons in the neighborhood where the best bacon is made, still obstinately follow the manner of their forefathers, and think they have good sound bacon. Were they to keep their whole stock however, until the month of August, they might see their error, as they would discover perhaps, that not a fourth part of it was sound.

The first requisite for good bacon is *the pork*, which must be really fat. Hogs more than one year old, and which have been raised poor, and afterwards well fatted in a short time *on corn*, are, I think, decidedly the best. The most convenient size is that of such as weigh between 100 and 160 lbs. Stye-raised hogs can never be made into the best bacon. Before the pork be salted it should have time to become perfectly cold, a circumstance indispensable perhaps to its sound preservation; and it is at least the safest course in our uncertain climate, to lose no time afterwards. The great improvement, which was made many years ago in the curing of bacon, amongst those who furnished the markets with what is usually called "Smithfield bacon," consisted in salting the pork more than once. This, with the use of saltpetre, which imparts a juiciness and flavor, which perhaps nothing else can supply to bacon, constitutes the only secret. Molasses used in conjunction with saltpetre, adds to its finishing relish. The latter article is never, I believe, used by professed bacon makers for sale, and saltpetre is not used by the large dealer, except for hams, and then in rather stinted quantities. The bacon of the small dealers is therefore much to be preferred.

The course which I pursue in salting my small quantity of pork, is as follows: as soon as the hams are cut out, a table spoonful of molasses is poured on the flesh side of a ham, and after being spread over it, a heaping table spoonful of saltpetre is put on, and rubbed into it. The hams thus prepared are then laid away until the rest of the pork is ready for salting. The same course I pursue with the shoulders, putting on a little less saltpetre. In salting, I use the Liverpool sack salt, and salt my pork always twice, sometimes, in doubtful weather, three times. The second salting should be about the third day after the first, at which time I put saltpetre, about a third as much as in the first instance, again on the hams and shoulders. Should pork be frozen when first salted, it should be resalted as soon as practicable after it thaws, as in that case there is often great danger of its spoiling. I put saltpetre on every piece of my pork, and use about five pounds to the 1000 lbs. of pork, It contributes, I believe, not only towards its flavor and appearance, but also, in a greater proportion than salt, to its preservation, and as a preventive against the worm, bug, and skipper. Care should be taken to let the brine drain off from meat in salt, and if it be salted in casks, there should be a hole in their bottom after the second salting, that the brine may escape, as its contact with the meat tends to injure its flavor. Pork should be allowed to remain in salt about four weeks, and longer, I think, if it be very large. I know however, one of the best makers of bacon who thinks that hams are injured by remaining so long in salt. But, in my opinion, if saltpetre be used in sufficient quantity, and the pork be *really fat*, bacon can scarcely be made too salt; and I should therefore be seldom in a hurry to hang it up. As good bacon as ever I have seen lay in salt more than three months.

The last operation in making good bacon is that of smoking, which is best done in clear, dry weather, and may perhaps be sufficiently well done with any kind of wood, though solid green wood, as oak or hickory, I take to be the best. Contrary to old opinions, the operation is best carried on in the closest smoke-house, and a considerable degree of heat too, is not, I think, unfavorable to the operation. What used to be called "fire tainted" meat is known now to be spoilt meat, occasioned by the unfavorable state of the weather, or its not being properly salted. Bacon can scarcely be smoked too much. The smokes should be continued at least until it has a dark reddish brown color. The joints should always be hung highest in the smoke house, for as they are more liable to be injured by the skipper, they will thereby be more out of the way of the fly which seldom ascends high, if it can find lower prices to pitch upon. Smoke-houses ought to be constructed so tight as to be dark when the door is closed. I have strong reason to believe that bacon which might be kept through the summer uninjured, in a dark smoke-house, might sustain much injury in one which was quite light.

By pursuing the course pointed out in the above directions, the writer of this has for many years past cured a small quantity of bacon of his own raising, and which he has been assured by many whom he considered as judges, was not surpassed in quality by any. To one of these, a distinguished member of the General Court, directions, substantially the same as the above, were given some years since, and published, as the writer understood, in the Compiler newspaper.

Isle of Wight, Dec, 21, 1835.

MARLING ON POOR LAND.

To the Editor of the Farmers' Register.

Though a stranger to you, I should, long before this time, have thrown in my mite to the columns of your very useful Register, (of which as a sub-

scriber I have been a constant reader,) only from a consciousness of my inability to cope with your more learned correspondents: having never enjoyed the advantages of a collegiate education, I was forced to *graduate* in Petersburg over a jack-plane. After leaving Petersburg, I purchased a piece of land in this county, which was, notoriously, one of the poorest in the county—without buildings or other necessary improvements. My land, at the time I purchased it, was so poor, that I should have considered one half barrel of corn to the acre a *good crop*. Since that time, I have erected a comfortable dwelling, and other necessary houses, and improved my land to such a state, that I believe it will yield me from four to eight barrels to the acre in a tolerable season, and under fair circumstances. This, however, has been the result of constant labor and attention; but you see my labor has not been in vain. I have paid particular attention to the advantages of *marl*. In 1830, I commenced its use, being prevented attending to this branch of agriculture earlier, by having to attend to my buildings, and carriage-maker's shop. In 1831—32, I only gave a partial attention to this business, as much however, as my neighbors: but in the fall of 1832, and the winter 1833, I got out 33,000 loads of marl and other manure, upon 80 or 100 acres, and in the same year raised off the said field 350 to 400 barrels of corn—and having to cultivate my land upon the "two-field system," I raised, this year off the same field 500 barrels. I have this fall put a portion of this field, which is low, swampy land, say 12 acres, in herds grass, and having about 28 acres more of the same quality of land, I propose continuing from year to year to sow a portion in the same grass, until I shall have made meadow of all my swamps. As many persons, from an injudicious or ignorant application of *marl* appear to be prejudiced against its use entirely, I deem it necessary to say a few words in relation to it; not that I would at all dictate, but only offer the result of my own experience. It is thought by some, that to use it in *very small quantities* may, in some instances, be productive of benefit; while others appear to think its use so dangerous, or attended with so much risk, that it is better to dispense with it entirely.

The marl I use, is in strength, from 40 to 65 per cent. I have put as much as 800 bushels to the acre, and am of opinion that a much greater quantity might be beneficially used. At all events, my land, upon which in 1833 I put the 800 bushels, would now bear perhaps a similar quantity.* My mode of marling has been, to scatter through the fields alternately, one row of marl, and one of farm-pen manure, or woods litter—and from the happy effects of this system of marling upon my own land, I am of opinion that no man, who can procure marl in sufficient quantities, need any longer complain of poor land and light crops. From all this extra exertion of improving my land, and erecting my buildings, I need hardly tell you that I have run myself considerably in debt—yet by a correspondent in your 3d Vol. 8th No. page 454, I am somewhat encouraged: as the writer tells me, I may in future raise corn without cultivating it—and as this will save me considerable expense, I hope in a few years to be able to extricate myself from the difficulties under which I now lie—for if I could only raise six or seven barrels of corn to the acre, without the expense of cultivating it, I am sure that my net profits would be something considerable every year.

In conclusion, would it not be better, think you, if those persons who are suffering so much from an emigrating mania, would turn their attention to the improvement of their lands, and thus save themselves the trouble of going some hundreds of miles in order to raise good crops; this they might do, and still continue near the bones of their forefathers, and of all those ancient worthies for whose sakes we rejoice to be called Virginians.

THOMAS M. STUBBLEFIELD.

Corn Hill, Gloucester county, Va., Dec. 13, 1835.

*We warn our correspondent that he has encountered great risk of future loss, by such heavy marling on land naturally poor—and that nothing but also giving plenty of vegetable matter to the same land will secure it, even yet, from injury. His mode of using farm-yard manure may have been, so far, his safeguard—but its quantity will scarcely suffice for that, if he continues so to apply his marl, and over so much space. Ed.

CONVERTIBILITY OF WHEAT TO CHEAT.

To the Editor of the Farmers' Register.

A few days before I commenced cutting wheat, (1834,) a hail-storm passed over a part of the wheat field, and nearly saved me the trouble, though not the expense, of harvesting. The wheat came up nearly as thick as we sometimes see it about barn-yards. It continued to look as well as wheat (growing in grass) could do, until the last of September, when, on examination, more fly was discovered than I had ever before seen in wheat. Nevertheless, in the month of February following, it was the only wheat on the farm worth looking at. But as the spring advanced, it proved to be all cheat—for which I was prepared. You will of course see that I am one of the "clodpolls" who believe in the mutation of wheat to cheat—how else to account for more cheat growing on three acres of the last year's stubble field than ever vegetated on the whole farm from 1798 until 1835, I am utterly at a loss. I give you facts. Your own opinion on the subject is well known to me.

The corn crop of this year is not more than a fair average.

THOMAS CARY NELSON.

Bleak Hill, King William County, Nov. 25th, 1835.

—

Frederick, Va., Sept. 26th, 1835.

Sir, Mr. H. will deliver you a small package containing a root bearing apparently wheat and cheat, for your inspection, which I have taken the liberty of forwarding to you for dissection, to ascertain if we are correct in the opinion, that it is but one root. Should it be found, on examination, to be but one, it will tend, in some measure, to settle the much disputed question of wheat and cheat being the legitimate offspring of the same parent, that have been estranged from each other by disease or decrepitude. If conve-

nient, you can state the result of your examination in the Register, for the information and gratification of its numerous readers, who may be pleased to know the result.

NATHANIEL BURWELL.

[The package referred to above was lost or destroyed by accident, while in the charge of the gentleman who would otherwise have delivered it. If it had reached us, every care would have been used to insure a fair and complete examination, and a correct report of the facts ascertained. As it is, we have only to present, in the foregoing letter, the additional and highly respectable authority which exists for the appearance favorable to that side of the question to which our individual opinion remains opposed.]

For the Farmers' Register.

THE PROPOSED AGRICULTURAL CONVENTION.

If the plan of an agricultural convention which has been proposed in the Farmers' Regester, should be approved and carried into effect, it will be well for every individual who may propose to attend it, previously to take into consideration, and to mature his own views in relation to each of the several subjects which he may deem proper for discussion, and the action of the body. Without much of such previous and separate consideration, there may be a numerous meeting, and containlng the most intelligent and able merbers of the agricultural interest—and yet nothing be done, because nothing had been previously digested, and that the meeting would not continue long enough for mature deliberation to be both commenced and finished. The adoption of undigested opinions, and hasty and injudicious action, will do more harm than good to the cause of agriculture. Upon this ground, I hope it will not be deemed too presumptuous in an unknown individual to mention the subjects which appear to him deserving of the attention of an agricultural convention. As I merely design to offer hints, for the consideration of others of more influence and talent, I shall not argue in favor of the absolute or relative importance of any subject. It will be for others to receive and improve on such suggestions—or to reject them, if unworthy of notice.

In addition to the establishment of an agricultural professorship, as recommended by the proposer of the convention, I would call to the recollection of your readers the several other institutions recommended to the fostering care of the government of Virginia, in several Nos. of your 1st and 2nd volume. These were (as well as I remember, not having all the Nos. now at hand,) agricultural societies upon a proper plan—schools for instruction in practical agriculture—a model farm—and an experimental farm. All these are important objects, in comparison with which, the suggestions which are submitted in the following queries may seem scarcely worthy of notice—nevertheless, I will state whatever occurs to my mind, however trivial may be the benefit which its adoption would promise.

Would not agricultural knowledge be greatly advanced by the general adoption of agricultural class-books for common schools, instead of some of the usual northern compilations, from which no useful information is derived? If very generally used, such books on different branches of agriculture and domestic economy might be sold at as low prices as any whatever, and would serve as well for boys to learn to read, and at the same time fix on thousands of youthful minds directions for their future labors, which in most cases in no other way would be read. Even if such a substitution of school books produced no important benefit, it would not cost an additional cent's expense, and could do no possible harm.

Would it not be advisable for the Convention to leave to different committees the task of considering and reporting on, at a future time, all the subjects affecting agricultural interests on which no immediate action can be had? The reports of such committees would have no obligation, except the moral force which truth and reason always ought to have—and they might engage the minds and pens of some of our ablest men, and bring forth varied, extensive, and most important views, as to the interests of agriculture, aud the means for promoting them.

A SUPPORTER OF THE INTERESTS OF AGRICULTURE.

[There has been a strange and blamable remissness in giving notice to the public of the meeting of the Agricultural Convention, to be held in Richmond, on the second Monday in January—and it is feared that many zealous and able friends to agriculture, will thereby be kept ignorant of the time, until it is too late. Our views in support of this important measure were stated at sufficient length, when the proposition was first published in a former No. of this journal. There has never before occurred an opportunity by which more could be done for the agricultural and general interests of Virginia—and there certainly never was a time when they more needed the zealous and efficient support of every true Virginian.

It is very lately that we have learned that delegates to the Convention have been chosen by the Agricultural Societies of Albemarle and of Fredericksburg. Those chosen by the Agricultural Society of Buckingham were announced in our last No.—and as that is the only official notice that has reached us, perhaps appointments have been made by other societies, of which we have not yet heard. But the delegates from societies will form a very small part of the convention. Every one having an interest in agriculture has been invited to attend—and it is hoped that a numerous assemblage will be there, ready and zealous for action. An interest in the welfare of agriculture is the only requisite for admittance—and an earnest desire to promote agricultural improvement will alone render any member useful, and his presence and support valuable.]

FURTHER NOTICE OF THE PRAIRIE SOILS OF ARKANSA, WITH SPECIMENS AND THEIR LOCALITIES PARTICULARLY DESCRIBED.

Hempstead county, Ark. Ter.
Oct. 24, 1835.

To the Editor of the Farmers' Register.

Agreeably to your request, I send you specimens of our prairie and woodland soils.

A section made near the point of a ridge, grown

over with stately pine, oak, and hiekory, sloping on their sides at an angle of 30 degrees, and bordered with a naked prairie at 30 feet distance. A surface of three inches depth composed of decayed vegetation with a little sand, was removed, when a stratum of red clay, 12 inches deep, was exposed—(No. 1.) Next was a blue clay, 12 inches deep, (No. 2.) Next a dry pulverulent substance, (No. 3,) of about the same depth, which appears to be identical with No. 4, taken from 12 inches below the surface of the naked prairie adjoining. No. 5 was taken from immediately above the latter, and six inches below the surface sod of the naked prairie. No. 6 is a pulverized specimen of the dense substance that underlies the whole of this section of country, and was taken from immediately below No. 4. It is deposited in strata of from four to six inches thick, and is occasionally interspersed with strata of a substance resembling No. 2. Wells or graves dug on any of our upland, whatever may be the surface soil, invariably, at various depths, penetrate this material, and it has not yet been pierced through by our deepest wells. It seems, as I formerly stated, to form the basis of our rich black soil. Though of a light color when first exposed to the light, yet when slaked by the elements, and mixed with sand, clay, and vegetable matter, it becomes of a deep black, and accumulated in our valleys by washing rains, constitutes our canebrake uplands. This quality of soil has, this past season, produced 100 bushels of corn to the acre—wheat 15 to 20 bushels, and cotton 1500 weight. It was not injured by the severe drought in the spring, nor the excessive rains in August. No. 7 is taken from the wall of the ditch cut through the alluvial bottom of my field, six feet below the surface.

The specimens, except No. 6. when first taken up. were coarsely granulated, moist and pasty, easily mashed between the thumb and finger. They were afterwards dried and pulverized for the more convenient transmission.

The whole surface of the uplands lies rolling, with gentle swells, and the substrata betray the same inclination. The soft limestone frequently crops out at the surface, where it is dissolved by the weather, and is washed to where it is mixed with the vegetable matter of a lower level, and loses its distinctive color. If carbonate of lime be the *sine qua non* in the composition of rich durable soils, we have it in abundance.

I have to thank you for the file of the Farmers' Register, and your Essay on Calcareous Manures, as well as Mr. Featherstonhaugh's report. It is much to be regretted that Mr. F. did not direct his investigations more with a view to the promotion of agricultural science. The mystery of nature's operations in producing food for animated beings, the materials she works with, and the modes of combining them, come legitimately under the head of geology, and is to that science what physiology is to anatomy; and in the course of improvement for which the present age is remarkable, we may expect to see geology, chemistry, and agriculture associated, and taught together in our institutions of learning.

N. D. SMITH.

[The specimens described in the foregoing letter were requested of our correspondent, and selected by him (with respect to their location in both prairie and woodland,) according to our general directions. The interesting, though too general information on this subject, furnished by a former letter from Dr. Smith, (page 273, Vol. III. Farm. Reg.) induced our seeking from the same source what was more precise. It was supposed, that specimens of soil and subsoil, taken in both woodland and prairie, where there was an abrupt line of separation, and where these different kinds of land, preserving all their peculiar features, approached closely to, or actually touched each other, would best serve to prove, or disprove, the truth of our views of prairie soils. The specimens were well chosen for the object, and their respective proportions of calcareous ingredients, as tested by our analyses, furnish new and strong supports of the doctrine maintained at length in No. 6, that such differences in soils were the usual and sufficient causes of the formation of prairies in some regions, and their non-existence in others. These specimens show that a body of soil and subsoil, both not much exceeding two feet in thickness, being destitute of carbonate of lime, can sustain a growth of large and flourishing trees, though the earth beneath is highly calcareous; but that where the surface, and also the lower beds,are calcareous, trees are no more seen, and the land is a perfect prairie.

The specimens described above, on being submitted to chemical tests, gave the following results:

From Woodland.

No. 1. Red clay, } 100 parts contained of car-
No. 2. Blue clay subsoil, } bonate of lime—none.
No. 3. Still lower, - - - - 27

From Prairie land adjacent.

No. 5. (6 inches below the surface sod,) - - 28
No. 4. Lower—(12 inches,) - - - 58
No. 6. General character of soft rock, (the "rotten limestone" of Alabama,) which underlies the whole country, - - 77
No. 7. Alluvial soil—contained no carbonate of lime.

From the Transactions of the Geological Society of Pennsylvania.

ACCOUNT OF THE TRAVERTIN DEPOSITED BY THE WATERS OF THE SWEET SPRINGS, IN ALLEGHANY COUNTY, IN THE STATE OF VIRGINIA, AND OF AN ANCIENT TRAVERTIN DISCOVERED IN THE ADJACENT HILLS.

By G. W. FEATHERSTONHAUGH, Geologist to the United States, Fellow of the Geological Societies of London and Pennsylvania, &c.

In a report lately made to government, and recently published by order of both houses of congress, I have at page 21 spoken of a rare geological phenomenon, in the valley of the Sweet Springs, Virginia; the which, as it is connected with the structure of the Alleghany ridges, I am desirous of giving a more full description of, for the transactions of the Geological Society of Pennsylvania.

The principal ridges of the Alleghany elevations have a general parallelism to each other, and coming from the north, run in a S. S. W. direction through the state of Virginia, until they

blend with the table lands that are bounded by the carboniferous beds of the Cumberland Mountains, in the state of Tennessee. Many of the valleys between these ridges are intersected by numerous knobs, outliers and spurs, which, at inferior elevations, are connected with the main ridge. The White Sulphur Springs, in the county of Greenbrier, rise at the western foot of the main ridge, usually passing under the designations of Alleghany and Backbone mountain, on account of its being a watershed for the heads of various important streams, which empty into the Ohio river at the west, and into the Atlantic at the east.

In passing from the White Sulphur to the Sweet Springs, a distance of about 18 miles, the direct course would be nearly south, but there is a good main road, which passes somewhat obliquely through numerous romantic dells and defiles of the Backbone Ridge alluded to, into a broad valley, bounded by an inferior ridge, here called Peter's Mountain, at the foot of which the Sweet Springs rise. This is the same ridge which, 50 miles to the north, is called Warm Springs Mountain, the Hot and Warm Springs of Bath county bursting out at its western foot.

This valley, like many of the others, is agreeably diversified by hummocks, spurs and knobs, all well wooded, and interspersed with numerous sequestered coves, and wild looking little vales, which separate them.

I had an opportunity during the past summer of examining this part of the country, and found some important beds of anthracite coal on the eastern edge of the main Alleghany ridge, about eight miles south of the White Sulphur Springs, and lying off two or three miles from the main road. About 14 miles from the White Sulphur, the elevations recede, the country begins to open, and a very rich bottom of land presents itself, through which the waters of the Sweet Springs flow after they have left their source. The soil here is extremely fertile, bearing luxuriant crops of corn, and indeed nothing can be more beautiful than this valley opening as the traveller advances, and bounded by Peter's Mountain.

At the foot of a graceful knoll which extends about three quarters of a mile to this mountain, the Sweet Springs break out very copiously. Before they have left the spring 100 yards, they begin to deposite carbonate of lime, which has formed a regular travertin on the sides of a brook running near the enclosure of the establishment. This brook gives a stream, which, as I have before observed, runs through the rich bottom land. The stream runs for near two miles from the Sweet Springs, until it reaches a fall of about 75 yards, where there is a saw mill. This fall is about 550 yards across the valley, and the people of the vicinity call it the Beaver Dam, supposing it to have been constructed by the beavers, as many logs are lying on the slope, which, without reflection, may be thought to be the remains of an ancient structure erected by these animals. On examining this fall, and its broad slope, now entirely grown up with bushes and brakes, I was surprised to find that the whole slope consisted of calcareous matter of the same character as that I had observed at the Sweet Springs. It was evident, therefore, that the stream, now only a few yards broad, had once covered the whole surface of the valley; that the rich bottom had once been a pond dammed up, and that the water had been discharged as in ordinary dams, over the whole breadth of 550 yards. If this were so, it struck me that the flat land at the bottom of the slope must have been also covered by this calcareous stream. On examining it, I found it to be the case, and following it up for near three quarters of a mile over the travertin, I came at last to a cascade 42 feet high and about six feet broad. The stream was here projected in a very beautiful sheet upon the lower grauwacke slate, which in many places had a stalagmitic floor of travertin upon it of a foot thick. Having scrambled down to the slate, I had a front view of the cascade, with the whole ledge of travertin it was projected from, together with the infinite variety of stalactitic rods and pilasters depending from it. I observed a hemlock tree, *Abies Canadensis*, about forty years old, in full life, incrusted, all its roots and about seven feet of the stem, with calcareous matter.

Near the foot of this wall of travertin, more than 40 feet high, were the entrances to various caverns, similar to some spacious ones I had entered in the calcareous dam I have spoken of, with depending stalactites, in some instances resembling filagree work and petrified mosses, the fretted appearance of which is caused by the spray of the cascade. And here I would remark, that mineral waters of this character deposite their solid contents most rapidly when they are in quick motion and at shallow depths, the water being then more completely submitted to the action of the sun, and rendered less capable of holding the calcareous matter in solution. This I suppose to be the cause of the broad calcareous slope which has been attributed to the ingenuity of the beavers. When these valleys of denudation were scooped out, and a deep ravine formed where this rich valley bottom now is, the stream at this place probably passed over a rapid, that breaking the water produced the deposite in question, which constantly rose in height until the aqueous volume diminished to its present size, by the filling up of the ravine with calcareous and vegetable alluvial matter, converting the bare slaty bed of the ravine into a fertile valley, capable of producing 10,000 bushels of Indian corn annually; a singular instance of the benificent manner in which nature operates in favor of man. For here we see the springs of life not only issuing from the depths of the wilderness to restore the enfeebled constitution of the suffering southerner, but that portion of them not directly applicable to his wants, mechanically engaged, by a most happy process, in producing the means of sustaining those who here seek relief, and of embellishing every thing around them. These are amongst the charming lessons we receive from nature, and which dispose our hearts to see a divine care for us in every thing.

I was one day returning to my cabin, with some specimens of this travertin, when I met Mr. Rogers, the landlord of the establishment at the Sweet Springs, an old inhabitant of this part of the country, and a very intelligent and worthy person. He assured me that, some years ago, when hunting deer in the hills, he had seen some rocks exactly resembling them. As he is a man of very good judgement, I proposed to him to ac-

company me there, and he cheerfully assented. Mounting his horse, and accompanied by myself on foot, we went about six miles in a north direction; but so many years had elapsed since he had casually observed the place, and the deep dells and hills, clothed with their everlasting woods, resembled each other so much, that we passed an entire morning wandering about, climbing one hill and descending another, till I began to think he had been mistaken, and told him so; but he proposed trying another hill side, called Snake Run Mountain, and there I followed him. Being in advance of me, I heard him hallo, and immediately knew, from the cheerful sound of his voice, that the game was found. He approached me, holding in his hand a piece of very ancient travertin, which I recognized at once; and leading me to the brow of a hill, at least 350 feet above the level of the Sweet Spring, I saw, to my great surprise, a huge mural escarpment of travertin skirting the brow of the hill, with the weather-worn remains of old stalactites, whilst the body of the rock resembled in every particular the recent one at the cascade, abounding in large pipes of calcareous matter, which had formerly enclosed logs and branches of wood. The pendent stalactites consisted of concentric circles, and there was the complete evidence that a stream of mineral water of great breadth, containing carbonate of lime, had for a great length of time passed over this brow and formed the rock. The surface of the rock in many parts was interspersed with what are vulgarly called pot-holes, being circular perforations made in rocks by pieces of rock and gravel, kept whirling in them by streams of water, similar to those which I have seen at the summit of the lofty hills of Lake George, in the state of New York. This Snake Run Mountain stood as I found by compass, N. N. E. by E. from the Sweet Springs; and Peter's Mountain, of which I could get a peep through the trees, bore east of the place where I stood.

Here was an extraordinary phenomenon! an immense deposite of travertin lying 350 feet above the level of the spring from which it probably was derived. It seems to be susceptible of no other explanation, than that the level of the valley was, at some remote period, much higher than it is now, and that the springs were at least at this level. The Snake Run Mountain is a large limestone outlier from Peter's Mountain, such as are constantly found in the valleys. Before these were scooped out by the retiring currents, it is probable the whole surface of the now deeply sulcated region was continuous, and that the springs issued from the bottom of the ocean. When the valleys were swept out, these knobs, hills and spurs, being hard compact transition limestone, resisted, and were left; whilst the conglomerates, shales and sandstones, were carried away: since that period, the softer parts of the formations occupying that part of the valley where the springs now are, have been gradually worn down, and a new direction given to the stream, whilst the old travertin remains a monument of the ancient level, and one of the strong geological proofs of the process of denudation.

These mountainous countries have undergone great changes. I frequently found fragments of conglomerate sandstone (old red) abounding on the slopes and in the valleys, together with slabs and pieces of encrinital limestone, which are not to be found *in situ*, except this last, which I found near the summit of White Rock Mountain, a conspicuous eminence, a few miles west by south from the White Sulphur. The conglomerates appear to have lain above the highest existing summits, and to have been swept away.

From *British Husbandry.*

ON PUTRESCENT MANURES.

Putrescent manures, as we have already seen, consist of all animal and vegetable substances which can be reduced through decomposition, fermentation, and putrefaction, into such a state as will render them fit to assist the melioration of the land, and to forward the purposes of vegetation. When combined, they form a saponaceous, solid mass of great nutritive power, well known to farmers under the common term of "muck;" which, although seemingly an uncouth expression, conveys an idea distinct from that which is meant by dung. Of these, the most generally useful are composed of the excrements of animals; for that which passes through them is not composed alone of the residue of their food, but also of certain secretions of other matter in the intestinal canal, so that the dung, even of those which are supported entirely on vegetables, partakes more of an animal than of a vegetable nature. The food on which they are supported, and their state of flesh, also make an essential difference in the quality of the manure. If the stomach of an animal be filled with provision which contains but little nutriment, and which is composed of fibrous matter which it is difficult to decompose—for instance, straw alone, without grain—this will pass through the intestines in almost the same state as it was eaten. The dung will contain less of that secretion which belongs to animals whose flesh has not been deprived of its nourishing juices; though even this small quantity serves to give the straw a stimulus to putrefaction. But the excrement of animals which have been supported upon nutritive food—as corn and pulse, or the oleaginous seeds of rape and linseed, though given in the shape of cake—and which are thus maintained in high condition, imbibes much of that property to which we have alluded, which thereby yields a more fertilizing manure than that furnished by lean stock. This, indeed, is strikingly exemplified by the difference observable in that produced by stall-fed cattle, and those kept in the straw-yard; and there can be no doubt that the fatter the animal the richer will be its dung.*

It has been thought that the dung of ruminant animals—oxen and sheep—when pastured, is preferable to that of horses, also kept at grass, which is supposed to be owing to the greater quantity of animal juices secreted with their food in the act of chewing;† but the fact requires to be established

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*It is stated in the Norfolk Report, that 10 loads of dung from cattle fed upon oil-cake, have been found to answer as well as 16 from beasts fed upon turnips.—p. 420.

†Outlines of Agriculture, by A. Hunter, M. D., F. R. S., &c. p. 11.

by a more minute and critical analysis of its properties. All animal manure, however, partakes in its fertilizing properties of the richness of the food by which it has been created; yet experience proves that its immediate powers are in several instances widely different. Thus the ordure of a man and that of a dog, though fed upon the same food, is so wholly distinct in its effects, that the excrement of the latter is used instead of bark in the process of tanning goat-skins for the production of morocco leather. Pigeon's dung, too, is hotter than that of other fowls,* though both are fed alike; and is said that a celebrated foreign chemist—M. Vauquelin—has not only lately discovered a very remarkable difference between the dung of cocks and hens, but that there also exists a sensible distinction between that of hens which lay, and of those which do not produce eggs! However deserving those researches may be of inquiry, and however important they may hereafter prove, if followed up with regard to the larger animals, it would yet be difficult, and perhaps, under all circumstances, unnecessary, to state the differences of the comparative character and value of these and various other putrescible bodies—such as fish, spoiled flesh, and many other substances, which, though all, no doubt, useful to vegetation, when they can be procured on such terms as that the farmer finds they can be profitably applied to his purpose. are yet seldom found in such abundance as to require a separate account of the properties of each. We, therefore, do not deem it necessary to pursue that portion of the subject farther, and shall accordingly proceed to the consiberation of that compound of vegetable and animal substance so well known under the title of

Farm yard Manure.

This must ever be ranked in the first class; and when improved yards have been constructed for the soiling of cattle, and attention has been paid to the quality as well as the increase of their dung, the manure thus produced becomes of inestimable value. No husbandman can carry on his business without it, and every one who attends for a moment to the difficulty of procuring a sufficient quantity of dung, as well as of preparing what is got, will acknowledge, that however imperfectly the subject be understood, none is more deserving of serious investigation; yet even the most superficial observer on the common state of culture can hardly fail to remark, that the evident inattention to its management is such as would almost lead to the supposition that it is not worth the pains of the farmers's care. Nothing is more common than to see large heaps of manure thrown out from the stables and feeding-sheds, and exposed in that state to the weather, without any regard to its being either laid up in a regular and careful manner, secured from evaporation, or carefully mixed in different proportions,according to its various qualities; yet these proportions are severally of a very distinct and important nature.

When *horse-dung* is sufficiently moist, and is exposed to the action of the air, it speedily enters into a state of fermentation, which is necessary to mix and assimilate its watery, oily, and saline parts; but if care be not taken in that process, it exhales so much heat that it soon becomes dried up, its volatile particles are evaporated, and it easily crumbles. If the parts of which it is composed are not also so compactly heaped as to exclude the air, they become likewise unequally decomposed, grow mouldy, and the whole mass is thus deprived of much of its fertilizing power. If, however, the natural moisture be retained, or it be regularly and moderately wetted, it acquires almost the consistence of a paste, or that state which is called *spit-dung;* and if it be laid upon the land before it is entirely decomposed, its effects upon vegetation are prompt and powerful; which is partly to be attributed to the heat which is developed anew, when, after being ploughed under the soil, its decomposition is completed. This occasions it to act with singular efficacy upon lands which are cold and clayey, the faults of which it tends greatly to correct, and the soil is much benefited. It also greatly improves land which abounds in vegetable mould, because the ammonia contained in the manure favors its decomposition.

When completely decomposed, and thus reduced to the condition of *rotten dung*, it is much lessened in quantity, but that residue contains the essential part of its substance, which is highly favorable to vegetation on land of every kind with which it is incorporated. In this state, however, it is often productive of bad effects upon dry, sandy, chalky, or other light and calcareous soils; for there it stimulates the plants too powerfully at the first period of their growth, so that when the action of the dung has ceased, vegetation becomes languid; in corn crops great bulk of straw is produced, but the grain is apt to be deficient. It is also less durable, because it is consumed by the excess of its own fermentation, and its powers being thus exhausted, it has but little effect upon the future crops on such land.

The *dung of horned cattle* also soon ferments when it is collected into a heap, and is only moistened by its own humidity; but this process is slower than in the dung of horses, because it is not so much exposed to the same internal heat, in consequence of which the evaporation is less, and being ordinarily voided in a very moist state, it does not require to be wetted. Neither is it subject to crumble; but it rather becomes a mass of unctuous substance, which it retains until its moisture is entirely exhausted, when it assumes the appearance of dried peat, or turf, and when not well mixed with the earth, it is found in the land in clods sometimes so long as two or three years after it has been laid on. Its effect upon the soil is slower than that of horse dung: it has been also considered more durable; but, as we have already observed, this latter effect must in great measure depend upon the nature of the food by which it has been produced. Whatever may be the degree of fermentation at which it has arrived, it does not seem to occasion any perceptible heat when laid upon the land; for which reason it is best adapted to dry and warm soils. Thus, upon sands and gravels, which, from their nature, are apt to be hot, its cooling qualities counteract that effect, and upon such land it has been found of infinite service; but upon strong clays, it appears to be nearly inoperative if buried under the ground,

*By an experiment stated in the Agricultural Magazine, it was found that the dung of hens was found more effectual than that of ducks; while that of geese was scarcely perceptible as a manure.

and not exposed to contact with the atmosphere by repeated ploughings. When used alone, it has, however, been considered, in most instances, as nearly worthless;* and the most advantageous mode of employing it, is to form it into a compost with the other contents of the farm-yard. It has also been thought that the dung of milch cows is inferior to that of oxen;† but this can only be attributed to their yield of milk, which probably deprives it of some portion of its richness, and when they are dried off and fattened, there is no perceptible difference.

Sheep-dung decomposes quickly when it is moist and compactly heaped together; but when dry and dispersed, its decomposition is slow and imperfect. Its effect upon the soil is soon dissipated, and is generally exhausted after a second crop. Much ammonia is disengaged from the excrements, and more especially from the urine of sheep, and this renders their manure particularly valuable upon soils which contain insoluble mould. That which is found on the floor of sheep-cotes, when left undisturbed, is of two qualities—that of the upper layer, which is occasionally renewed with fresh litter, being strawy, dry, and not fermented; while, on the contrary, that of the under layer is moist, clammy, and fit for use. When the dung is removed, care should therefore be taken to mix both layers, so that they may be equally decomposed; and, when thus prepared, the manure should be spread sparingly upon the land, if used for corn crops, or it is apt to make them run to straw: but upon cold, sour soils, this unfermented dung may be used in large quantities with considerable advantage. The most usual way of procuring it, however, is by folding, under which head it will be separately treated when we come to the subject of sheep. Here, therefore, it is only necessary to remark, that it appears, from an experiment on record, that 134 ewes and wethers, with 30 lambs, were penned during six weeks in a sheep-cote, and littered with one load of straw per week, which produced 28 large loads of dung: thus—

	£	s.	d.
Valuing the dung at 7s. 6d. per load	10	10	0
Straw, at 69 cwt. 1 qr. 20 lbs. at 20s. per ton, or about	3	10	0

this would leave £14 for the manure. But these sheep consumed the produce of two acres of drawn turnips; in which time, according to all common calculation, they would have folded two acres, without the expense of either taking up the crop, or of spreading the dung.‡ In another standing fold, containing an English acre, the plan adopted was to spread the straw a foot deep, and strew turnips upon one-half of the fold every two or three days alternately, until the litter become wet, when it was again covered with fresh straw: the sheep thus lay very dry; and in this manner, it is said, that, in the course of the season, 800 tons of the best manure upon a farm in East Lothian was produced by 308 wethers! The quantity, indeed, appears so very extraordinary as to seem almost incredible, and had it not been stated on the respectable authority of Sir John Sinclair, we should have hesitated to afford it insertion:* but—though not so stated in his account—it is probable that the fold was also deeply bedded with sand.

Swine's dung is, by many persons, considered as the richest of all animal manure, except night-soil; while others view it as being of a cold description. It is of a soapy nature, is slow of fermentation, and when laid upon very cold soils, it should be mixed with horse-dung; for although its stimulating powers upon vegetation are very great, yet of itself it does not heat sufficiently to destroy the seeds of weeds. Mr. Malcolm, indeed, says that 'he has often seen it applied to land consisting of a shallow loam upon a fine gravel, and land of a sandy nature, in which soils it has filled the ground with weeds, particularly the May-weed; and in a hot season a crop of barley has been entirely burnt up.'† The loss of the barley-crop may however be partly attributed to the dryness of the season, and the foulness of the land to the want of good culture. Any ill-managed manure may be full of the seeds of weeds, and therefore they may be sown with it. But it is a futile charge against any species of manure to say that it encourages weeds; for it is evident that if the land were clean, the same stimulus which acts upon them, would be applied, in like manner, to the crop of grain intended to be cultivated. We do not hear such complaints from farmers who drill their corn and effectually hoe the intervals. When, therefore, it is considered that vast quantities of weeds are usually cast into the pig-sties, many of them bearing seeds fully ripened, it will be evident that caution is requisite to destroy their vegetative powers before this manure is laid upon arable lands. On this account, nothing can be more proper than to form a dunghill by a mixture from the pig-sties and the stable. The well-known property of horse-dung to ferment freely, will completely effect what is required, and the compost will be found most valuable. The worth of manure from the pig-sties will however depend much upon the mode in which it is prepared. If the litter be often renewed, and it be kept dry, either by sloping gutters, or by means of holes bored in the planking of the floor, then the straw will retain but a small quantity of the urine, and will be productive of little other effect than if it were merely rotten. But if it be allowed to become saturated with the urine, by stopping those drains, and care be taken to preserve the litter in a proper state for decomposition, it will ferment rapidly, lose its coldness, and become a very strong manure. The necessity of cleanliness in the stye is a consideration apart, which belongs more properly to the future subject of the treatment of hogs.

*An instance is mentioned in the Essex Report of 15 acres having been manured for beans—6 with horse dung, and 9 with dung from the cow-yard; and that the 6 acres produced far more than the 9.—Vol. ii. p. 230. In an experiment made near Grantham, in Lincolnshire, on a poor dry soil, the manure from a horse-yard, and that from a yard where neat cattle were wintered, were used separately for turnips, and the former was found to have greatly the advantage.—Sinclair's Code of Agriculture, 3rd edit., note, p. 214.

†Bedfordshire Report, p. 509.

‡Complete Grazier, 5th edit. p. 258.

* Husbandry of Scotland, vol. ii. App. p. 47; and Gen. Rep. of Scotland, vol. ii. note p. 511.

† Survey of Surry, Kent, and Sussex, vol. ii. p. 27.

A full stock of swine effect very great service when permitted to run loose in farm-yards where much straw is used; they highly enrich it by their dung and urine, and mechanically promote the decomposition of its woody fibre by the manner in which they constantly work among it—breaking it to pieces, and thus rendering it more manageable on arable land, even when in the earliest stage of decomposition. They have, indeed, been strongly recommended by Mr. Blaikie, who advises, in his very judicious essay on farm-yard manure, 'that those industrious and useful animals should be attracted to the yard, because they rout the straw and dung about in search of grains of corn, bits of Swedish turnips, and other food, by which means the manure becomes more intimately mixed, and is proportionally increased in value.'* Great inconvenience has, however, arisen from allowing them to run about the buildings, through the difficulty of preventing them from getting out, and damaging crops and fences; wherefore many farmers have adopted the plan of having paled yards, with open sheds, for the sole purpose of keeping their store pigs.

Urine, although essentially composed of water, yet contains much of the elements of vegetation in a state of solution peculiar to itself, and is combined, through the secretion of the vessels, with carbon and saline matter, from which it derives its nutritive properties, as well as with a large portion of ammonia, to which it owes the peculiar smell by which it is distinguished. The various species of urine from different animals differ in their constituents, and the urine of the same animals alters when any material change is made in the nature of the food.† The analysis of its composition has shown it to be most favorable to vegetation when mixed with other excrement, and with straw, or similar substances, because it occasions their combination, and contributes to their more perfect decomposition, by which they are converted into the species of manure of which we are treating; and although we confine that manure to straw, or haulm, and to the dung of horses and oxen, both as that of which it is the most generally composed, and as folding and night-soil will be separately considered, it yet includes every other kind of ordure.

Straw of all kinds, or similar dry vegetable matter, when used as litter, is well known to form a principal ingredient in the composition of farm-yard manure; not perhaps so much by the nourishment which it is of itself capable of imparting to the soil, as from the value which it acquires by its absorption of urine, as well as by combining with dung in its different stages of decomposition, and imparting consistence to the whole mass, which is then carried more regularly through the processes of fermentation and putrefaction, by which it is rendered fit for the purpose for which it is wanted. Nothing, in fact, can be better adapted for the mixture than straw; for it would rot with difficulty and imperfectly but for the dung, which brings an accession of the richest materials to the heap, and there can be no doubt that, when thus combined, it forms the best and the most generally useful of all manures, for every kind of land. All the various sorts of straw and haulm answer the purposes of litter, though opinions vary respecting its value for that use; some contending that rye straw is the best, while others insist, with more apparent reason, that the straw of wheat absorbs more moisture, and it is supposed to be equal to three times its weight after it has been saturated with urine.

It was the system of Bakewell, during a part of his life, to convert the whole of the straw into food for his stock, and it was also the opinion of many of his supporters that this mode of consuming straw would not only tend considerably to increase the number of black cattle, but also to improve the quality of manure; for they argued—'that straw is not alone thus rendered fit for the support of live-stock, but that, by being digested and passed through their bodies, it must become a much more highly enriched manure than in the ordinary way of treading and rotting.' Bakewell, however, altered his opinion at a later period of his life, and the doctrine is certainly questionable; for although it be true that a part of the straw, when eaten, assists the fermentation of the remainder, yet, when partly used as litter, it at once absorbs the urine, which is perhaps of more value, as manure, than straw which has been merely

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* Edition of 1828, p. 12.

† By experiments made by Mr. Brande on 100 parts of the urine of cows, and by Fourcroy and Vauquelin of horses, the following proportions were found in each, viz.:—

Cows.

Phosphate of lime - - -	3
Muriates of potassa and ammonia - -	15
Sulphate of potassa - - -	6
Carbonate of potassa and ammonia -	4
Urea - - - - -	4
Water - - - - -	65

Horses.

Carbonate of lime - - - -	11
do. of soda - - - -	9
Benzoate of do. - - - -	24
Muriate of potassa - - - -	9
Urea - - - - -	7
Water and mucilage - - -	40

There is, therefore, more alkaline salts in the urine of horses, which consequently possesses greater fertilizing powers than that of oxen; and it has been not inaptly demanded, whether, if these ingredients could be procured cheap, and rendered soluble in water, they might not be so prepared as to become valuable for saturating dung-hills, or for application in its liquid state?—*Leicester Report*, note, p. 190. Human urine contains a greater variety of constituents than any other species, and differs in comparison according to the state of the body. All urine is liable to undergo putrefaction very suddenly; but that of carnivorous animals more rapidly than that of granivorous animals. The potash and pearl-ash of commerce are carbonates of *potassa*, of different degrees of purity.—*Sir H. Davy, Elem. of Agric. Chem.*, p. 256. *See also the Analysis, by Berzelius, and by W. Henry, M. D., F. R. S., Elem. of Exper. Chem.* 10th edit., vol. ii. chap. xiii. sect. v.

The white globe turnip not only yields a larger quantity of urine, but its effect as a manure upon any crop is less apparent than that of either the yellow Aberdeen or the Swedish. That produced by cut grass is comparatively weak; but the liquid manure from the refuse of distilleries, such as grains and dregs, has been found good.—*Quart. Jour. of Agric.*, No. xix p. 96.

masticated and digested, without being combined with richer food; and it is yet very doubtful whether, if all the straw in the kingdom were to be passed through the intestines of animals, the manure made from their dung would not be thereby reduced both in quality and quantity. The practice differs in various counties: in some parts of Yorkshire, and other places, a farmer commonly makes his cattle eat almost every particle of straw, leaving scarcely any to litter their stalls; while in Norfolk, they convert nearly the whole into muck, and no system is considered more impoverishing to land than that of applying the straw as food instead of treading it into dung.* The medium course is doubtless the most to be approved when it can be conveniently carried into effect; but there are many farms which either do not produce turnips, or only sufficient for their sheep, by which they are eaten off upon the land, and corn or oil-cake being too expensive for store and working stock, they must necessarily be chiefly kept upon straw. It is therefore profusely used for store-cattle in most yards, yet, by having abundance, they pick out the best and leave the refuse for litter: it is only necessary to supply it fresh, with a moderate quantity of turnips, or any succulent root, to promote the secretion of urine, and the manure thus produced will be found of excellent quality; but if they be wholly fed on straw, although the farmer may have a large dunghill, it will be found to be of comparatively little value.

It has been thought that cattle getting wholly straw, or other dry forage for both food and litter, may consume nearly three-fifths of it as food, and there would still remain a useful mixture of dung and straw for manure. When they are supplied, as young or keeping stock, with turnips to keep them merely in condition, the manure will be in good order when they eat about one-half of the straw, and leave the other half as litter. If again, they are being fattened on turnips, or fed on distiller's wash, grains, or upon other food, which produces their dung with much urine, they would then require to have at least three-fifths, if not a still larger quantity of straw left for litter. These proportions will, in such instances, be generally found to produce manure of a good description; but when beasts are fatting upon steamed potatoes and oil-cake, or other provender which occasions costiveness, or does not occasion a free discharge of urine, it may sometimes be necessary to moisten the dung-heap, by which means any quantity of straw may be rotted, and, with a comparatively small proportion of dung, may be converted into manure.† Mr. Marshall mentions having tried the effects of moisture in some experiments on his own farm upon heaps of dung which had lain until much of it had become mouldy, one of which he watered, bringing the outward and dry parts into the middle of the pile, and drenching it well with the drainage of the yard; it was then carefully turned over, breaking every lump and mixing all its parts, then finally wetting the surface, and clapping it smooth and close with the back of the shovel to keep it in the heat. It began to work on the second or third day, after which the mouldiness disappeared, and it was converted into comparatively rich, black, and rotten dung; and other similar trials were equally successful.* The utility of that point of management is, in fact, unquestionable: the trouble is not worth mentioning; but were it greater, and that any thing is to be thereby gained in the quality of the dung, that can form no sufficient excuse for its omission—for, if it be of any value, it cannot be too good, and the experience of kitchen gardeners, who are well known to use great care in the preparation of dung, and to profit accordingly, should operate as a hint to farmers to use similar means.

There can be no doubt that the *haulm of beans and peas* produces more nutritive food than straw. When the former is well broken by thrashing, it also forms a very tolerable litter, for which purpose it is much used in most parts of England, though in some places it is wholly laid, as if of no further value, in the bottom of the straw-yard, and pea-haulm is more generally employed in cart-stables for racking up the horses, and for sheep, which are very fond of it. In Scotland, however, the haulm of neither is used for litter, unless it has been spoiled by the weather, or has become sticky by the crop having been allowed to stand too long upon the ground before being cut, and it is there, more prudently, kept for the purposes of feeding.

When straw and haulm are scarce, many substitutes are used as litter, and the quality is but little regarded, because, being seldom employed except in cases of necessity, they do not admit of choice. It is, however, highly injudicious to mix vegetable substances that do not decompose equally, for when the straw in a mixen is fully digested and fit for the field, other articles may perhaps be still in a state of fermentation. Thus, in many places, *heath* serves the same purpose, and makes very good manure; but it is slow in decaying, and requires more than a twelve-month to go through the process of putrefaction. *Fern*, also, and many of the coarse aquatic plants which yield potash when reduced to cinders, possess very fertilizing qualities, and, when added to the dung-heap in a green state, they become speedily decomposed; but, when dried for litter, that operation is very tedious. It commonly takes more than a year before it is thoroughly concocted; it therefore retards the maturation of the straw, and either the one must be exhausted of its properties, or the other not in a fit state of decomposition when laid upon the land, if both are used in the same dung-heap; but separately, and when properly fermented, fern is as good as straw. The same remark applies to the *leaves of trees;* particularly to those of the oak, which contain an astringent property that renders them extremely difficult of decomposition, and if laid upon the land before they are brought into that state, they are found to be prejudicial to vegetation on light soils. They should, not therefore, be mixed up with straw, but formed into a compost by the addition of scourings of ditches, or any other soil, mixed with quicklime. Great caution should also be observed in making use of the sweepings of the barns, for they often contain the seeds of weeds, even after the dunghill has been reduced to putridity; it is therefore only prudent to use them separately with mould and a small

* Young's Survey of Norfolk, chap. xi. sect. 3.
†Quart. Journ. of Agric., vol. xi. note, p. 335.

*Marshall's Rural Economy of the Midland Counties, vol. ii. pp. 95, 120.

quantity of quicklime, which should, however, be cautiously applied, as lime has the effect of decomposing vegetable matter so promptly as to materially lessen its bulk.

[To be Continued.]

Extract from an address delivered by A. Stewart, at Oswego.

WAR VERSUS RAIL ROADS, COMPARED AS SUBJECTS FOR NATIONAL EXPENDITURES.

What has been done on the subject of rail roads and canals in New York, Pensylvania, and Ohio, in the last seventeen years, will exceed all that has been done by Europe from the morning of time. The sister states will be laid under lasting obligation to New York, for her great example in the work of internal improvements, which has given new impulse to the affairs of mankind.

What better could New York do with the vastness of her resources, than judiciously expend 100 millions of dollars in rail roads and canals? Every dollar would be quadrupled, in private and public benefit.

The world has been exhausted by all her resources, hitherto, in *war* and *architecture*. The war-wasted resources of the world, would have made every inch of land a garden, from the regions of eternal ice to the burning line.

Our late patriotic war cost us one hundred and thirty millions of money, which would have made us ten thousand miles of rail road and canal. Had this one hundred and thirty millions been so appropriated, it would have left my country ahead of the world.

Look at the waste of public money and human labor, in the useless architecture of the pyramids, those "piles of wonder," and "sleeping places of death," mere pride and ostentation! The proud monarchs by whom built, their names have perished from the records of human remembrance; the same labor and money would have united the Nile and Red Sea, the Persian Gulf; and saved the long and dangerous navigation around the Cape of Good Hope.

Look at the Languedoc Canal—the only monument likely to rescue the memory of Louis 14th from oblivion; but what was this expenditure compared with the waste of money on building the palaces, and making the wild hills of rocks, and fictitious lake at Versailles?—amounting to the enormous sum of four hundred millions of dollars—a sum sufficient to have brought a rail road and canal to the gate of every city and village in France, and left a direct communication between such city and village, and the Mediterranean and Atlantic. These same palaces at Versailles are now a frightful solitude; nothing is seen but an old decayed officer hobbling over the piles of sculpture and through empty palaces, to show the stranger and travellers those vacant abodes of the departed enemies of man.

The energies of the Grecian and Roman nations were squandered upon those expensive erections of marble which inflamed pride and ambition, without benefiting the commerce of those nations. What would have made ten miles of canal, was expended on the *polieh* of the columns of a heathen temple.

Look at modern Europe, covered with abbeys, castles, and the nonsense of kings, by which the power of the nation has been wasted in the pride of architecture.

The money spent on any one of the thousand wars of Europe would have connected the Indian ocean with the Mediterranean, and the Pacific with the Atlantic by the Isthmus of Darien; and the too often disastrous navigation around Cape Horn and that of Good Hope might have been avoided, and the navigation of the globe shortened one-half.

UNPRODUCTIVENESS OF THE SKINLESS OAT.

[The anxiety expressed by many of our correspondents to obtain seed of the skinless oats, induced us to write to Messrs. Prince for a parcel, which was designed to be distributed gratuitously. We give below an extract from their answer, which furnishes a very different opinion from that generally held of this much praised grain. There can be no better authority on such a subject than Messrs. Prince—and this may be taken as one, added to the numerous previous examples of new products, being cried up as wonders, and soon after universally admitted to be not worth culture.]

To the Editor of the Farmers' Register.

The skinless oat, so far as the results of its culture have been known to us, is the least productive of all the varieties. The quantity of straw, however, is very great—and the abundant vegetation causes the cultivator to expect an immense crop previous to his harvesting it. Either by deterioration, by admixture of the pollen of other varieties growing adjacent, or from some other cause, there is usually a considerable portion of the crop that is not skinless. Possibly this may arise from the seed sown not having been pure. Certain it is, however, that if the admixture is but in a small proportion when sown, it will far exceed in ratio when harvested. We have not time to add more than this. We have the seed for sale, but we advise no person to sow it for profit.

Yours very respectfully,

WM. PRINCE & SONS.

Linnæan Botanic Garden,
Flushing, Dec. 21, 1835.

PROCEEDINGS OF AGRICULTURAL SOCIETIES.

[We regret that the following proceedings should have reached us too late for the last No.—and indeed for the extract from the Albemarle transactions, we were at last indebted to a source not official, and as late as Dec. 25th. It is desirable, with regard to such proceedings as are designed for this journal, that they should be sent in as early as possible. In this case, the delay of the report on the Agricultural Convention, (by the committee of the Albemarle Society,) is a subject of especial regret—and the more so because, in no publication did it come under our observation before this copy was received.]

Fredericksburg, Nov. 23, 1835.

SIR—Enclosed you will find an abstract of the proceedings of the Fredericksburg Agricultural Society, which I send by the request of the society for publication in the Register. Your compliance will oblige,

Very respectfully, your ob'dt serv't,

R. B. SEMPLE,

Sec. and Treas. Fred. Ag. Society.

AGRICULTURAL SOCIETY OF FREDERICKSBURG.

Annual Meeting, Nov. 12.

The Society was called to order by the late Secretary, when on motion, the rule requiring the election of officers by ballot was suspended, and the Society proceeded to the election of their officers for the ensuing year, whereupon the following named gentlemen were unanimously elected:

JAMES M. GARNETT, *President,*
GEORGE HAMILTON, 1*st V. President,*
FRANCIS W. TALIAFERRO, 2*d V. P.,*
ROBT. B. SEMPLE, *Sec'ry. & Treasurer.*

Mrs. L. M. Taliaferro, of King George, having signified to this Society her desire to become a member, it was unanimously resolved that she be admitted.

Evening Session.

George Hamilton, 1st Vice President, in the chair, when the several committees made their reports.

The Committee on mares, colts, fillies and riding horses, beg leave to report that there were several fine mares exhibited, and some difficulty presented itself, in making our selection; however, we have declared our opinion in favor of a sorrel mare, the property of John H. Lee, Esq.

The same difficulties presented themselves on the subject of the colts and fillies. Nevertheless, we have come to the conclusion that the finest is a sorrel colt, the property of Dr. Grayson.

A number of fine riding horses were exhibited, and the committee are of opinion that a roan horse, the property of Charles Tayloe, Esq., is entitled to the premium. All of which they beg leave most respectfully to submit.

JAMES RICHARDS.

The committee for stallions and jacks report that there were two horses exhibited for the premium "for the best thorough bred stallion," viz: James Lunsford's young Truffle, and Jeremiah Wilson's Gray Janus; that the pedigree presented to them as that of Gray Janus, being so defective that they cannot regard him as a thorough-bred horse, and there being, therefore, no competition for this premium, the committee have *resolved unanimously* to recommend that no premium be awarded for the best thorough-bred stallion.

The committee further report, that for the premium offered for the best stallion without regard to blood, were entered, Booker Waller's Pretender, and Gabriel Long's Young Janus, and that they award the premium to Pretender, a large heavy horse well calculated for the get of wagon horses.

The committee further report that three jacks were entered for the premium for the best jack, viz: W. A. G. D. Ashton's Don Juan, Thomas Rowe's Black Hawk, and Jeremiah Wilson's Jack, and that they award the premium to Mr. Rowe's Black Hawk—this jack being of superior size and figure.

FRANCIS W. TALIAFERRO,
EDW. T. TAYLOE.

The Committee on beef, sheep and mutton beg leave to report, that they have examined the fatted work-oxen, and do award the premium to J. S. Wellford, of Fredericksburg.

And to John S. Wellford, for the best grass fed beef.

And to John F. Taliaferro, of Orange, for the best mutton, grass-fatted.

A fine ram and ewe were exhibited by Mr. John Gray, of Stafford, but as there were no other ram or ewe exhibited, the committee decline awarding a premium, and refer it to the Society to decide whether they will award Mr. Gray a premium or not.

GEORGE ROWE.

Upon inquiry made by the society, and report furnished by the committee, that the sheep exhibited by Mr. Gray were extraordinarily fine; it was unanimously resolved that Mr. Gray be awarded the premium for the best sheep exhibited.

The committee appointed to examine and report upon the best bull and best milch cow, report that they award the premium for the best milch cow, taking into view pedigree, &c. to Edward T. Tayloe, and they further report, that there were but two bulls offered—one of them being without pedigree, the other, though with pedigree of the improved breed, we think not deserving of a premium.

GEORGE HAMILTON.

An essay on the horse was read by Francis W. Taliaferro.

Friday, Nov. 13*th—*2*d day.*

The Society met pursuant to adjournment, the president in the chair.

On motion of John Dickinson:

Resolved, That a premium of ten dollars be offered to any member of this society who shall exhibit satisfactory proof of the greatest nett profit made in the same year from one acre of land, cultivated in some crop suitable for a staple, within the range of residence of the members of this society.

The society adjourned to attend the exhibition of domestic manufactures, &c., and to hear the president's annual address, which was delivered by request of the society, at the Town Hall, and to meet again half past 3 o'clock.

Evening Session.

Pursuant to appointment the society met, the president in the chair.

The committee on domestic manufactures report that they award $5 to Miss Achison, for carpet—that the 2d is unworthy of a premium.—1st counterpane, wool and cotton mixed, Miss Achison, $3—2d do. Wm. I. C. Rothrock, $2—1st coun-

terpane, cotton—Proctor, $3—2d do. Wm. I. C. Rothrock, $2—1 pair wool stockings, Miss Hill, $1—2d do. Miss Benson, $1—1 other material, Miss Berryman, $1—1 piece flannel, Miss Hill, $5—negro clothing, none worthy: discretionary, deemed worthy Mrs. Gordon's rug, $5—Mrs. Skinker's plaid, $2—Duerson's cassinett, $1—Miss Fitzhugh's straw bonnet, $1—Miss Richards' tippet, $5.

The Committee on butter, award the premium to Miss M. E. Mitchell, of Spottsylvania, for the best 10 lbs. of Butter.

WM. JACKSON.

The Committee on Agricultural Implements report that they have examined two articles exhibited by Mr. James M. Garnett, one an expanding harrow, for which they award ten dollars.

The other an Echellon cast hoed Cultivator, fixed in a wooden brake, being original in several respects, and promising utility for cultivating corn, or seeding wheat, they award to him $5 for the same.

YEAMANS SMITH.

Upon motion of Major James Richards, and sustained by Mr. John Dickinson, it was unanimously

Resolved, That the premium on the expanding harrow, be increased to twenty dollars—and the one on the cast hoed cultivator, be increased to ten dollars, and that the thanks of this society be tendered to Mr. Garnett for the great improvement made upon these important implements of husbandry.

On motion of Mr. Dickinson:

Resolved, That the report of the committee on agricultural implements be forwarded to the Editors of the Arena, Herald, and Farmers' Register, with the request of the society, that they be published in their respective journals.

PROCEEDINGS OF THE AGRICULTURAL SOCIETY OF ALBEMARLE.

Premiums awarded at the 11th Annual Exhibition.

Horses.

To James Ross, for the stallion by Truffle, out of Lady Teazle, best calculated to improve the breed of horses, $10
To Wm. Garth, for the best brood mare, 8
To Seth Burnley, for his mare, by Sergeant's Medley, calculated for agricultural purposes, 6
To Bez'l Brown, for his three year old colt, Bonnets O'Gray, by Gray Beard, 6
To Clifton Brown, for his three year old colt, Black Beard, by Gray Beard, out of a full blooded Potomac mare, the second premium of 4
To William Garth, the second premium for the best two year old colt, 3
To John Rodes, for the best year old colt, (by Byron,) 3
To J. P. Sampson, for the best do. by Wild Fire, 2

Cattle.

To John Winn, for the best bull, $8
To John H. Craven, for the second best do. two years old, 5
To John N. C. Stockton, for the best cow, 5
To John Winn, for the second best do. 4
To Wm. Woods, for the best heifer, one year old. 5
To John Winn, for the second best do. two years old, 3

Sheep.

To William Woods, for the best ram, 6
To J. H. Craven, for the second best do. 5
To John Winn, for the best pen of ewes, 5
To J. H. Craven, for the second best do. 4

Domestic manufactures.

To Mrs. Clark, for the best piece of wool and cotton flannel, 3
To Mrs. Craven, for the second best do. 2
To Mrs. Dabney, for the best carpet, 6
To Mrs. Walter Coles, for the second best do. 5
To Miss Lucy Ann Simms, for the best hearth rug, 2
To Mrs. Mary Brown, the second premium for blankets 3
To Mrs. Winn, for the best negroes' winter clothing, 5
To Mrs. Sarah Bowcock, for the second best do. 4
To Miss Dabney, for the best pair of woollen hose, 1

The exhibition of suits of clothes, was decidedly better than those heretofore shown.

The Judges award to John Rodes, the first premium of $6
To John H. Craven, the second do. of 5
And to Wm. Woods, the third do. of 4

The Judges award to Mrs. Jane C. Woods, the first premium for the best cotton counterpane, 3
To Mrs. Simms, for the best piece of hempen or flax shirting for negroes, 4
To Mrs. Mary Brown, for the best piece of flax diaper, 4
To Mrs. F. Rodes, for the best piece of flax and cotton diaper, 3
To Mrs. Jane C. Woods, for the best pair of thread hose, 1
To Miss H. Gatewood, for the best pair of cotton hose, 1

Agricultural products.

To John Carter, the first premium for wine, made of the Catawba grape, 4
To James Clark, the second premium for wine, made of the common wild mountain grape, 3
To John H. Craven, for the best barrel of cider, 4

Cheese and butter.

To Mrs. Wm. Woods, for the best cheese, 3
To Mrs. J. N. C. Stockton, for the best butter, 3

To Mrs. Jane Randolph, for the second best do. 2

The Committee think it proper to add in relation to the award of the premiums for butter, that other ladies exhibited very excellent specimens of that article, highly creditable to their domestic economy and skill, between which and those to which the premiums were awarded, they had some difficulty in deciding.

The Committee of the Agricultural Society of Albemarle, on the subject of an agricultural convention, report the following preamble and resolutions for the consideration of the society.

Other classes congregating in towns and cities for the purpose of pursuing their employments with more advantage, easily unite on any subject involving their common interest: whilst agriculturists, residing in separate habitations—scattered through the country for the pursuit of individual interest, are with difficulty brought together, for consultation on the general good. To this circumstance no doubt may be attributed the fact, that in ancient times liberty and a republican form of government were confined to cities. The moderns, by the introduction of representation, have not only obviated this difficulty, but from the superior virtue of the tillers of the earth, given to liberty an extent and stability heretofore unknown.

This principle of delegated authority has been not only adopted in matters of government, but it is now every day's practice for those interested in any subject to depute some of their members to meet others similarly situated, to consult for the good of their class, and devise and recommend measures for their adoption.

Agriculture should certainly avail herself of this improvement to keep pace with the progress of society; and to make such regulations as may favor the general communication of knowledge and the acquisition of improvements from abroad, in the vegetable and animal kingdoms.

But perhaps the most important subject that could attract the attention of such a meeting, would be the suggesting and soliciting such legislation as the interests of tillage and husbandry require. It may be objected to this that our legislature being elected by the body of the people, a majority of whom are farmers would have the interests of their constituents at heart. Truly, they all wish to serve their constituents—but unfortunately so many are lawyers and politicians, looking forward to ulterior promotion, that but few know what the real interests of agriculture require. As evidence of this, witness the number of petitions sent in every year on the subject of enclosures, inspections, roads, &c. on which they fail to legislate at all, or do so in so bungling a manner as to increase the evil they meant to remedy. One great error of this legislation on local petitions is that they only hear one side and see one view of the question; whereas a convention of farmers from all parts of the state would see that the interests of none was sacrificed.

Amongst the numerous subjects which would command the attention of such a body, would probably be the establishment of a professorship of agriculture. It seems peculiarly hard that those who have mainly contributed to establish and support the best literary and scientific institution in the country, should be themselves excluded from its walls. And one of the great misfortunes is, that a large portion of the lands of the state fall into the hands of young men, entirely unacquainted with their management; which is not the case in other employments—for there must be evidence of knowledge in his profession before the lawyer can get a brief—the physician a patient—or even the blacksmith a horse to shoe: whilst the young heir comes to the possession of lands and negroes whether qualified or not.

Resolved, That the Agricultural Society of Albemarle proposes to all the other agricultural societies and counties in the state of Virginia, to send delegates to a convention to be held in the city of Richmond, on the second Monday of January next, to consult upon, devise and recommend such measures as they may deem proper for the promotion of the interests of agriculture.

Resolved, That this society elect five delegates to unite with such others as may meet for the purpose of forming said convention.

Resolved, That copies of the foregoing preamble and resolutions be furnished to the Virginia Advocate, Jeffersonian Republican and Farmers' Register for publication, and that they and all other papers in the state are requested to insert the same.

W. H. MERIWETHER, *Chairman.*

PROCEEDINGS OF THE FLORIDA AGRICULTURAL SOCIETY.

1. At an adjourned meeting of this institution, held at the Capitol, in the city of Tallahassee on the 11th instant.

2. Achille Murat, Esq., the chairman *pro tem* having made known to the society the recent death of their late acting secretary, Oscar White, Esq., Farquhar Macrae, Esq., nominated Edward Chandler as a proper person to act as secretary of this society at its present meeting; who having assented thereto, was accordingly appointed.

3. On motion of F. Macrae, it was

Resolved, That the "Florida Agricultural Society" deeply regret the death of their late acting secretary, Oscar White, deceased.

4. *Resolved*, That sympathising in the afflictions of his bereaved widow and other relatives, the society respectfully tender them their condolence.

5. *Resolved*, That this tribute of respect to the memory of our lamented secretary, be communicated through the secretary to his relatives, and be published in the Floridian.

6. Mr. Macrae, chairman of the committee of direction, appointed at the last meeting to draft a constitution for this society, reported a constitution to this meeting, which, with some amendment, was unanimously adopted.

7. On motion of the same gentleman, seconded by the Hon. Thomas Randall, the society then proceeded to elect its officers by ballot, and on counting the votes, the following named gentlemen were found to have been elected, viz:

1. John Parkhill, President of the Society.
2. Farquhar Macrae, Corresponding Secretary.
3. Edward Chandler, Recording Secretary.
4. Richard C. Parish, Treasurer.

On motion of Judge Randall, the election of

Vice Presidents and Directors for the several counties, was then gone into, and the result was as follows:

FOR LEON COUNTY.

Vice President.—Hector W. Braden.
Directors.—Angustus Alston and Ben. Chaires.

FOR JEFFERSON COUNTY.

Vice President.—Thomas Randall.
Directors.—Achille Murat and E. B. Vass.

FOR GADSDEN COUNTY.

Vice President.—Charles M. Du Pont.
Directors.—Joseph McBride and Henry Gee.

FOR MADISON COUNTY.

Vice President.—James B. Mays.
Directors.—John McGehee and John Miller.

FOR HAMILTON COUNTY.

Vice President.—Appleton Rosseter.
Directors.—James Bell and Joseph Law.

On motion, it was Resolved, That the secretary be, and he is hereby requested to cause these proceedings to be published in the Floridian.

The society then adjourned till the second Wednesday in December next, to convene at the same place at the hour of eleven o'clock.

EDWARD CHANDLER, Sec'ry.

NEW ARTIFICIAL MANURES—OFFAL OF SUGAR REFINERIES, AND ANIMALIZED CHARCOAL.

Translated from the *Annales de l'Agriculture Francaise* for the Farmers' Register.

[The two following articles, serve to give information on discoveries which are deemed of much importance in France, but have scarcely been heard of even by their neighbors in England, and still less in America. We published an article (p. 120 vol. 3,) from a British agricultural journal, which served to show a remarkable degree of existing ignorance as to the nature of these manures, while it also furnished evidence of the high estimation in which they are held on the continent. Though we had then met with frequent references to these manures, in recent French publications, there was nothing plain enough to be at all satisfactory, until we obtained the earlier Nos. of the *Annales*, from two of which for 1833, the following pieces are drawn.

The very rich manure furnished by the sugar works must necessarily be in small quantity, though to that limited extent, the substance is a matter of much value, and should be put to proper use. We know not whether this product of the sugar works of this country has been used, or is wasted like most of the other rich manures of our towns and factories. In France, the demand soon directed the attention of chemists to the fabrication of a substitute. The remains of the sugar works, were principally blood and charcoal, chemically combined. It occurred to Mr. Payen that any other kind of charcoal combined with any other animal matter, might furnish analogous substances, approaching in value to the remains of the sugar works. Hence his investigations, and the results stated below.

But the most valuable part of this fabrication of manure, is the effect of the carbonaceous matter in combining with putrefying and wasting substances, stopping the escape of the offensive and injurious effects of the effluvia, and preserving all, for the future fertilization of the earth. This is a great and important discovery—and we should rejoice to see it applied to use in this country, for the purposes of improving the cleanliness and health of towns, as well as to fertilize the surrounding farms. But it should be remembered that effects very similar, if not equal, may be much more cheaply obtained, by using mild calcareous earth to combine with, and secure from waste and from doing injury, all putrescent animal matters. Carbonate of lime as certainly combines chemically with decomposing animal substances, as it seems that charcoal does. The two compounds are, of course, substances of very different kinds and properties—but they agree in this, that the animal matter is equally well saved. The difference of value as manure, will depend on whether the charcoal in the one compound, or the calcareous ingredient of the other, is of most service.* We hope that some intelligent and spirited "town farmers" will attend to both these manures, for agricultural profit and improvement—and that even city councils may at some remote future time be persuaded to use these means to convert the filth of the cities to a true and important source of profit.]

Offal remains of sugar refineries.

The *Journal d' Agriculture des Pays-Bas* (of January 1831,) contains the detail of what experience has already made known upon the strength of the manure obtained from sugar works. This paper [the Gazette of Rural Economy, published in Hesse,] had given information of its use, in 1829. * * * *

These remains, besides the coarse part, contain a kind of mucilage, the blood used for clarification, parts of sugar not divided, and many other matters detached from the raw suger. It is perhaps the most powerful manure that is known. Its effect is so great, that it is very necessary to consult the nature of the soil, and other circumstances, so as not to apply too much, or too little. The quantity varies from three to six hectolitres to the hectare, [or nearly the same number of bushels to the acre.]

The most admirable effect of this manure is observed in clayey, moist and cold land: it cannot be used but with precaution, and in less quantity, on dry and light soils.

The remains of sugar may be mingled with other manure—for example, with rotten farm-yard manure and mould, the mud of ponds, peat, &c. To draw the greatest profit from this manure, it ought not always to be used alone, but alternately with dung, especiallly with that of large cattle. In this manner, a poor country may be carried to a growing state of prosperity.

Some heath lands had been too hastily condemned as not susceptible of culture; broken up eight years ago, they have borne crops since without respite. They have been manured four times,

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*See Essay on Calcareous Manures, 2nd Ed. ch. xix, and Note N. of Appendix.

in this time, to wit, twice with farm-yard dung, and twice with the remains of sugar, at the rate of four hectolitres to the hectare. This land now yields a high rent.

The effect of the remains of sugar does not last but two years; and there are soils on which it scarcely acts as long as the second year—but then it is strengthened by a half manuring from the farm-yard, and again will produce heavy harvests of corn, or other exhausting crops. The remains of sugar is the manure to be preferred for all cabbage-turnips, &c. It produces a very good effect upon cold and moist meadows; but it must not be spread there until spring, after they have been made dry.

The refineries of Belgium, Holland, the north of Germany, and even of Russia, send their remains, in great quantity, to Nantes, where they find a suitable *depot*. They are in much demand, sell at high prices, and their use is still extending upon the banks of the Loire, and even in the interior of La Vendee.

Animalized charcoal [*noir animalisé.*]

The following article in relation to the precious discovery of Messieurs, Salmon and Payen, is communicated to us by one of the men of science whom France most honors.

It is seldom that the world entertains a just idea of the discoveries which daily enrich the physical and chemical sciences. It is generally considered that a fact, of which there is no immediate application to the arts, ought to be put away among the archives of science, where adepts alone will go to search for it. But however little we may carry back our recollections to time past, a crowd of examples will naturally present themselves to correct ideas, and to replace such new facts in their proper rank. When we see that the discovery of the new world is due to the simple observation of the direction that a magnetized needle takes, when freely suspended on a pivot—and that the art of war is totally changed by the use of gunpowder, of which the discovery long preceded its application—we must be convinced that no new observation, however of little interest it may appear at first, ought to be neglected—for, soon or late, there may result from it useful applications. The benefit that has been derived latterly, from certain long known physical properties of charcoal, to form excellent manure, and to disinfect larger masses of organic and putrefying substances, comes to the support of the considerations which we have presented.

All substances are called *manures*, which when applied to the earth, serve for the nutrition of vegetables.* Manures are composed usually, of carbon in various states, of azotic matters, and of salts which act often upon plants as stimulants. In general, all organic matters are manures, more or less good, according to their nature, and according to the greater or less facility with which they yield their constituent parts to vegetation. We distinguish three kinds of manures, which have each their characteristic properties. These are—animal manures, composed of animal remains—vegetable manures, the name of which indicates their composition—and mixed manures, formed of any proportions of both the preceding mingled together. The first kind, without dispute, is that which most promotes the developement of vegetation. Also, if we seek the means of presenting animal matter in the most proper state, they will be found in retarding as much as possible the quick decomposition which would naturally take place.

We shall occupy ourselves, only, in this article, with the manure known in agriculture, for some years, under the name of animalized charcoal. Before making known its composition, and the advantages which may be derived from it, we will recall certain physical properties, which different charcoals, and all porous substances in general, possess: the reader will then the better understand the procedure in use, the patent invention [*breveté*] for preparing animalized charcoal. Charcoal possesses two very remarkable qualities, from which the arts have derived great benefit. It precipitates divers substances from a state of solution, by combining with them—and it absorbs in its pores considerable quantities of all the gases. To acquire for it the precipitating property, it is necessary that the charcoal should be burnt in close vessels. The kind which acts with most efficacy, is that which is obtained from animal matters, such as dried blood, hair, bones, &c. calcined with a chemical action proper to prepare the substances to be very minutely divided, when mechanical means are applied for that purpose. Charcoal thus prepared acts only on substances of organic origin, particularly upon such as are colored and odorous. It serves, as is known, to take away the color from red wines, and sirops, and to remove the fetid odor of bodies in a state of putrefaction, to render corrupted water potable, and to preserve fresh water at sea, by keeping it in casks charred on the insides. They also use, with success, pulverized charcoal to preserve animal substances for many months, in close vessels.

Messieurs. Burry and Payen have found that all organized bodies of animal origin do nor furnish charcoals possessing the same degree of precipitating power. The charcoal (or black) of ivory is that which has this power in the lowest degree, while the charcoal of blood is that which occupies the first rank, if its state of division is brought to the useful point.

The property of absorbing and condensing gases belongs not only to charcoal of animal origin, but also to that of wood; and in general, of all porous bodies: but for that end, it is necessary that these bodies should have been in the first place deprived of humidity.

We know not yet what is precisely the action of charcoal on vegetation, whether as alimentary manure [*engrais*] or an improver of soil [*amendement.*] Rumford has proved, it is true, that it can unite with oxygen, and form carbonic acid below the temperature at which the combustion of this substance commences visibly; and this fact would tend to explain why the spots in forests, where charcoal has been made, become fertile in after time. As an improver of soil, this substance has

*The reader of the translation of the *Essay on Lime*, may remember what was stated of the difference of meaning in the term *manure*, as used in French, and in English. (See Note, p. 360 vol. 3.) ED. FARM. REG.

properties which cannot be doubted, proceeding from its precipitating and absorbing action. In general, the matters which contain carbon in a state of minute division, are those which most favor the nutrition of plants, because they are most easily changed into carbonic acid, which is dissolved in water and absorbed by the plants.

M. Payen has applied himself to interesting researches upon the use of animal charcoal. This scientific manufacturer has proved that it was to be preferred, in refining sugar, to vegetable charcoal. He had to contend, for a long time, with the prejudices to which custom had given birth; but when he had well established the superiority of the first over the other, the refiners of the great manufacturing cities came to Paris to provide themselves with carbonized animal matters. This was for him a motive to connect himself with Messieurs. Salmon and Lupé, in order to devote their labors to this kind of fabrication. Before the formation of this establishment, M. Payen had studied with care the properties of animal charcoal, and had proved that the discoloring power depended on the state of division of both substances; that the carbon only of the various charcoals acted upon the coloring matters, by uniting with and precipitating them, and that in the refining of sugar, the action of the animal charcoal was carried equally upon the extractive matters; and that the remains of the refineries of sugar greatly favored the developement of vegetation.

We will now proceed to the formation and to the properties of animalized charcoal. There have been made a great number of trials to apply, in the most suitable and useful manner to vegetation, the remains of animal matters, which by reason of their constituent parts, act with most energy in aiding the developement of plants: but among all the men of science, or manufacturers who have attended to this subject, we ought to distinguish Messieurs Salmon, Payen, and Lupé, who have formed, in the plain of Grenelle, an establishment of this kind, which deserves to be encouraged.

It has been known, for some time, that the dregs or offal remains of the refinery of sugar, composed of animal charcoal, blood, and the extractive or impure parts of the raw sugar, formed an excellent manure.

M. Payen has sought means for bringing into use the bodies of dead animals. In a memoir (for which a prize was awarded by the Society of Agriculture in 1829,) he has demonstrated, by numerous facts, that the greatest possible benefit may be drawn from manures not rotted, and from the remains of animals not putrefied. He has at the same time made known the favorable influence of a fermentation retarded, and proportioned to the developement of vegetation. In this interesting memoir, the author has already indicated as one of the means the most fit to reach the end which he proposed, the absorption of soft organic matters, containing azote, (as the blood, the fecal matter, intestines, brains, &c.,) by earths dried in a furnace. This important result was the first step to make, to offer to plants animal matters not yet decomposed, in a very minute state of division.

In 1831, M. Salmon, an enlightened manufacturer, succeeded in uniting in one economical fabrication all the useful conditions which can be offered by a porous, absorbent, carbonaceous powder, charged as much as possible with organic animal matters. The immense advantage to agriculture to be derived from such a manure, may be imagined. M. Payen, hastened to unite his efforts to those of Messieurs. Salmon and Lupé, to accelerate the developements of a branch of industry which was to have a great influence on agriculture. The trials which have been made in various places with this manure, have served to confirm the previously formed opinions of its efficacy. Animalized charcoal, by reason of its mild and gradual action, may be placed in contact not only with seeds, but also with the herbaceous stems, and the roots of plants; which cannot be done with many other rich manures, as night soil [*poudrette*,] urine, &c.

It has been remarked in practice, that animalized charcoal has less activity in forcing the first developement of stems and leaves than some other manures; but that its action favored fructification much better. Messieurs Briaune and Bella, at Grignon, have observed, that compared with night soil, the product in grain of an equal space manured with animalized charcoal, was one-fifth at least more considerable. This fact has been observed equally in the culture of other cereal plants, and of rape, hemp, flax, clover, beets, turnips, &c. It has also been ascertained that grass or fodder crops at the time of mowing, presented an equal increase of product, although sometimes the early movements of vegetation may have been less rapid. Sown upon meadows, artificial and natural, upon grass sod, and upon corn at three or four inches high, animalized charcoal soon produced a deeper shade of green, and a sustained activity of vegetation. We are equally assured that in gardens, culinary vegetables, manured with four or five times as much animalized charcoal as in field culture, acquire gradually considerable dimensions.

Such are the benefits to be derived, in regard to agriculture, from the use of the carbonaceous animalized powder: but its preparation may be also of immense advantage for the salubrity of cities; we do not fear to call the attention of persons charged with their government, to this subject. The contents of privies and sewers, the infected mire, the remains of dead animals, are commonly carried to but a small distance from cities, where they serve to infect the neighborhood. Sometimes their complete decomposition does not arrive until at the end of some years; while if they were submitted immediately to the action of the pulverized coally matters, which are fabricated in the establishment of Messieurs Payen, Salmon and Company, the disinfection is instantaneous, and an excellent manure is immediately obtained. We have witnessed that entrails in a state of putrefaction, which spread a most offensive odor, have been converted immediately to manure having no odor. This establishment prepares a sufficient quantity of this charcoal to convert to manure a large part of the filth of Paris. We earnestly hope, both for the interests of agriculture and of humanity, that similar establishments may rise around all our great cities, to make disappear those hotbeds of infection, which often bear death and desolation in the midst a numerous population.

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Extracts from Governor McDuffie's Message to the Legislature of South Carolina.

PROTECTING DUTIES—SLAVERY—ABOLITION.

The magnitude of the burthen imposed upon the states which produce the great staples of exportation, by that compound scheme of taxation and prohibition, artfully denominated the protecting system, may now be estimated, in some sort, by the high state of agricultural and commercial prosperity which has followed the late adjustment of the federal tariff. By that measure of compromise, the duties upon many articles which we import from the manufacturing nations of Europe, were entirely repealed, upon others greatly and immediately reduced, and upon the entire class of protected articles a gradual and progressive reduction was provided, until they shall reach 20 per cent. in the year 1842, and after that the lowest rate that will furnish a revenue sufficient for the wants of the federal government, upon an economical scale of administration. Such are briefly the terms of that covenant of peace, which restored for a time the long lost harmony of the confederacy, and to which the faith of the contracting parties is solemnly pledged. And although it came short of conceding all that we had a strict right to demand, the benefits we have derived from it are great and manifest.

Every impost upon foreign merchandzie operates both as a tax, and as a restriction upon commerce. However, in this two-fold aspect of the subject, we may distribute the burthen of the tax, the burthen of the restriction falls exclusively upon the exports which constitute the exchanges of commerce. Hence the unjust and unequal operation of prohibitive duties on the exporting States, and hence, in a great degree, the enhancement of the price of their great agricultural staple, since the reduction of the duties. The degree in which this measure has contributed to produce that enhancement, will be made manifest by reference to a few statistical facts disclosed by the official statements of our foreign commerce, by the secretary of the federal treasury.

During the fiscal year ending the 30th of September, 1834, the importation of merchandize exempted from duty, amounted to the enormous sum of sixty-eight millions of dollars; fifty millions more than in any year previous to the recent enlargements of the list of free articles, and nineteen millions more than the whole amount of cotton exported from this country during the same year. Of this unexampled amount, about thirty millions came from the manufacturing nations of Europe, which consume our cotton, thus furnishing the means of a direct, untaxed and profitable exchange for our invaluable staple, equal to nearly two-thirds of the estimated value of the whole export of that staple. If to this we add six millions for the import of teas from China, which are now to a great extent virtually exchanged for our cotton, by means of an intermediate exchange for British manufactures suitable to the China market, the cause will be at once explained, of that sudden and seemingly unaccountable increase of the foreign demand for our cotton, which has exerted so propitious an influence upon its price, and by consequence upon the prosperity of the southern states. The extent of the demand for our raw cotton by the manufacturing nations of Europe, is limited only by that of our demand for their manufactures; and how much this has been increased by the recent adjustment of the duties upon foreign imports, is clearly shown by reference to authentic documents. It is in this view of the subject, that duties upon foreign imports impair the value of domestic exports, and that the repeal or reduction of those duties produces a corresponding enhancement of that value.

A free and unrestricted exchange of our agricultural staples for such foreign productions as we require for consumption in the United States, is the essential basis of the prosperity of the staple-growing portion of this confederacy; and whether these foreign productions consist of such articles as are manufactured in this country or not, is a less important consideration, than that they come from the countries that consume our staples, or from others in exchange for those staples. This was the basis of the late compromise with the federal government, in which the southern states consented that the duties on the class of protected articles should be gradually and progressively reduced to the revenue standard, on condition that they should be forthwith repealed or reduced to a nominal rate, on other articles, furnishing a beneficial foreign exchange for our exports. And I confidently trust that in the liberal spirit and with the liberal principle of this compromise, when the congress of eighteen hundred and forty-two shall come to perform the delicate and responsible duty of reducing the tariff of federal duties to such a revenue scale as will barely supply the funds requisite for an economical administration of the federal government, it will be found practicable so to reduce and arrange the duties, as to relieve the planting states to a much greater extent, without materially affecting the interests of the manufacturing states, and at the same time to withdraw from the vaults of the federal treasury, that prolific source of corruption, a large surplus revenue.

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Since your last adjournment, the public mind, throughout the slave-holding states, has been intensely, indignantly, and justly excited, by the wanton, officious and incendiary proceedings of certain societies and persons, in some of the non-slave-holding states, who have been actively employed in attempting to circulate among us, pamphlets, papers and pictorial representations of the most offensive and inflammatory character, and eminently calculated to seduce our slaves from their fidelity, and excite them to insurrection and massacre. These wicked monsters and deluded fanatics, overlooking the numerous objects in their own vicinity who have a moral, if not a legal claim upon their charitable regard, run abroad, in the expansion of their hypocritical benevolence, muffled up in the saintly mantle of christian meekness, to fulfil the fiend-like errand of mingling the blood of the master and the slave, to whose fate they are equally indifferent, with the smouldering ruins of our peaceful dwellings. No principle of human action so utterly baffles all human calculation, as that species of fanatical enthusiasm, which is made up of envy and ambition, assuming the guise of religious zeal, and acting upon the known prejudices, religious or political, of an ignorant multitude. Under the influence of this species of voluntary madness, nothing is sacred that stands in the way of its purposes. Like all other religious impostures, it has power to consecrate every

act, however atrocious, and every person, however covered over with "multiplying villainies," that may promote its diabolical ends, or worship at its infernal altars. By its unholy creed, murder itself becomes a labor of love and charity, and the felon renegado who flies from the justice of his country, finds not only a refuge, but becomes a sainted minister in the sanctuary of its temple. No error can be more mischievous, than to underrate the danger of such a principle, and no policy can be more fatal, than to neglect it, from a contempt for the supposed insignificance of its agents. The experience of both France and Great Britain, fearfully instruct us, from what small and contemptible beginnings, this *ami des noirs* philanthropy may rise to a gigantic power, too mighty to be resisted by all the influence and energy of the government; in the one case, shrouding a wealthy and flourishing island in the blood of its inhabitants; in the other, literally driving the ministry, by means of an instructed Parliament, to perpetuate that act of suicidal legislation and colonial oppression, the emancipation of slaves in the British West Indies. It may be not unaptly compared to the element of fire, of which a neglected spark, amongst combustible materials, which a timely stamp of the foot might have extinguished forever, speedily swells into a sweeping torrent of fiery desolation, which no human power can arrest or control. In the opinion of intelligent West India planters, it is because the local authorities, from a sense of false security, neglected to hang up the first of these political missionaries that made their appearance on the British islands, that they are doomed to barrenness and desertion, and to be the wretched abodes of indolent and profligate blacks, exhibiting in their squalid poverty, gross immorality, and slavish subjection to an iron despotism of British bayonets, the fatal mockery of all the promised blessings of emancipation.

Under these circumstances, and in this critical conjuncture of our affairs, the solemn and responstble duty devolves on the legislature of "taking care that the republic receive no detriment."

The crime which these foreign incendiaries have committed against the peace of the state, is one of the very highest grade known to human laws. It not only strikes at the very existence of society, but seeks to accomplish the catastrophe, by the most horrible means, celebrating the obsequies of the state in a saturnial carnival of blood and murder, and while brutally violating all the charities of life, and desecrating the very altars of religion, impiously calling upon heaven to sanction these abominations. It is my deliberate opinion, that the laws of every community should punish this species of interference by death without benefit of clergy, regarding the authors of it as "enemies of the human race." Nothing could be more appropriate than for South Carolina to set this example in the present crisis, and I trust the legislature will not adjourn till it discharges this high duty of patriotism.

It cannot be disguised, however, that any laws which may be enacted by the authority of this state, however adequate to punish and repress offences committed within its limits, will be wholly insufficient to meet the exigencies of the present conjuncture. If we go no farther than this, we had as well do nothing. These outrages against the peace and safety of the state are perpetrated in other communities, which hold and exercise sovereign and exclusive jurisdiction over all persons and things within their territorial limits. It is within these limits, protected from responsibility to our laws by the sovereignty of the states in which they reside, that the authors of all this mischief, securely concoct their schemes, plant their batteries, and hurl their fiery missiles among us, aimed at that mighty magazine of combustible matter, the explosion of which would lay the state in ruins.

It will, therefore, become our imperious duty, recurring to those great principles of international law, which still exist in all their primitive force amongst the sovereign states of this confederacy, to demand of our sovereign associates the condign punishment of those enemies of our peace, who avail themselves of the sanctuaries of their respective jurisdictions, to carry on schemes of incendiary hostility against the institutions, the safety, and the existence of the state. In performing this high duty, to which we are constrained by the great law of self-preservation, let us approach our co-states with all the fraternal mildness which becomes us as members of the same family of confederated republics. and at the same time with that firmness and decision, which becomes a sovereign state while maintaining her dearest interests and most sacred rights.

For the institution of domestic slavery we hold ourselves responsible only to God, and it is utterly incompatible with the dignity and the safety of the state, to permit any foreign authority to question our right to maintain it. It may nevertheless be appropriate, as a voluntary token of our respect for the opinions of our confederate brethren, to present some views to their consideration on this subject, calculated to disabuse their minds of false opinions and pernicious prejudices.

No human institution, in my opinion, is more manifestly consistent with the will of God, than domestic slavery, and no one of his ordinances is written in more legible characters than that which consigns the African race to this condition, as more conducive to their own happiness, than any other of which they are susceptible. Whether we consult the sacred scriptures, or the lights of nature and reason, we shall find these truths as abundantly apparent, as if written with a sunbeam in the heavens. Under both the Jewish and christian dispensations of our religion, domestic slavery existed with the unequivocal sanction of its prophets, its apostles, and finally its great Author. The patriarchs themselves, those chosen instruments of God, were slave-holders. In fact, the divine sanction of this institution is so plainly written, that "he who runs may read" it, and those overrighteous pretenders and Pharisees, who affect to be scandalized by its existeuce among us, would do well to inquire how much more nearly they walk in the ways of godliness than did Abraham, Isaac and Jacob. That the African negro is destined by Providence to occupy this condition of servile dependence, is not less manifest. It is marked on the face, stamped on the skin, and evinced by the intellectual inferiority, and natural improvidence of his race. They have all the qualities that fit them for slaves, and not one of those that would fit them to be freemen. They are utterly unqualified, not only for rational freedom, but for self-government of any kind. They

are in all respects, physical, moral, and political, inferior to millions of the human race, who have for consecutive ages dragged out a wretched existence under a grinding political depotism, and who are doomed to this hopeless condition by the very qualities which unfit them for a better. It is utterly astonishing that any enlightened American, after contemplating all the manifold forms in which even the white race of mankind are doomed to slavery and oppression, should suppose it possible to reclaim the Africans from their destiny. The capacity to enjoy freedom is an attribute not to be communicated by human power. It is an endowment of God, and one of the rarest which it has pleased his inscrutable wisdom to bestow upon the nations of the earth. It is conferred as the reward of merit, and only upon those who are qualified to enjoy it. Until the "Ethiopian can change his skin," it will be vain to attempt, by any human power, to make freemen of those whom God has doomed to be slaves, by all their attributes.

Let not, therefore, the misguided and designing intermeddlers who seek to destroy our peace, imagine that they are serving the cause of God by practically arraigning the decrees of his providence. Indeed it would scarcely excite surprise, if, with the impious audacity of those who erected the tower of Babel, they should attempt to scale the battlements of heaven, and remonstrate with the God of wisdom for having put the mark of Cain and the curse of Ham upon the African race instead of the European.

If the benevolent friends of the black race would compare the condition of that portion of them which we hold in servitude, with that which still remains in Africa, totally unblessed by the lights of civilization or christianity, and equally destitute of hope and of happiness, they would be able to form some tolerable estimate of what our blacks have lost by slavery in America, and what they would gain by freedom in Africa. Greatly as their condition has been improved, by their subjection to an enlightened and christian people, (the only mode under heaven by which it could have been accomplished,) they are yet wholly unprepared for any thing like a rational system of self-government. Emancipation would be a positive curse, depriving them of a guardianship essential to their happiness, and they may well say in the language of the Spanish proverb, "save us from our friends, and we will take care of our enemies." If emancipated, where would they live, and what would be their condition? The idea of their remaining among us is utterly visionary. Amalgamation is abhorrent to every sentiment of nature; and if they remain as a separate caste, whether endowed with equal privileges or not, they will become our masters,or we must resume the mastery over them. This state of political amalgamation and conflict which the abolitionists evidently aim to produce, would be the most horrible condition imaginable, and would furnish Dante or Milton with the type for another chapter illustrating the horrors of the infernal regions. The only disposition, therefore, that could be made of our emancipated slaves, would be their transportation to Africa, to exterminate the natives, or be exterminated by them; contingencies, either of which may well serve to illustrate the wisdom, if not the philanthropy, of those super-serviceable madmen, who in the name of humanity would desolate the fairest region of the earth, and destroy the most perfect system of social and political happiness that ever has existed. It is perfectly evident, that the destiny of the negro race is either the worst possible form of political slavery, or domestic servitude, as it exists in the slave-holding states.

The advantage of domestic slavery over the most favorable condition of political slavery, does not admit of a question. It is the obvious interest of the master, not less than his duty, to provide comfortable food and clothing for his slaves; and whatever false and exaggerated stories may be propagated by mercenary travellers who make a trade of exchanging calumny for hospitality, the peasantry and operatives of no country in the world are better provided for in these respects, than the slaves of our country. In the single empire of Great Britain, the most free and enlightened nation in Europe, there are more wretched paupers and half-starving operatives, than there are negro slaves in the United States. In all respects, the comforts of our slaves are greatly superior to those of the English operatives, or the Irish and continental peasantry, to say nothing of the millions of paupers crowded together in those loathsome receptacles of starving humanity, the public poor-houses. Beside the hardship of incessant toil, too much almost for human nature to endure, and the sufferings of actual want driving them almost to despair, those miserable creatures are perpetually annoyed by the most distressing cares for the future condition of themselves and their children.

From this excess of labor, this actual want, and these distressing cares, our slaves are entirely exempted. They habitually labor from two to four hours a day less than the operatives in other countries, and it has been truly remarked by some writer, that a negro cannot be made to injure himself by excessive labor. It may be safely affirmed, that they usually eat as much wholesome and substantial food in one day as English operatives or Irish peasants eat in two. And as regards concern for the future, their condition may well be envied even by their own masters. There is not upon the face of the earth, any class of people, high or low, so perfectly free from care and anxiety. They know that their masters will provide for them, under all circumstances, and that in the extremity of old age, instead of being driven to beggary, or to seek public charity in a poor-house, they will be comfortably accommodated, and kindly treated,among their relatives and associates. Cato the elder, has been regarded as a model of Roman virtue; and yet he is said to have sold his superannuated slaves, to avoid the expense of maintaining them. The citizens of this state may not aspire to rival the virtue of the Romans; but it may be safely affirmed, that they would doom to execration that master who should imitate the inhuman example of the Roman paragon. The government of our slaves is strictly patriarchal, and produces those mutual feelings of kindness on the part of the master,and fidelity and attachment on the part of the slave, which can only result from a constant interchange of good offices, and which can only exist in a system of domestic or patriarchal slavery. They are entirely unknown either in a state of political slavery, or in that form of do-

mestic servitude which exists in all other communities.

In a word, our slaves are cheerful, contented and happy, much beyond the general condition of the human race, except where those foreign intruders and fatal ministers of mischief, the emancipationists, like their arch-prototype in the garden of Eden, and actuated by no less envy, have tempted them to aspire above the condition to which they have been assigned in the order of providence.

Nor can it be admitted, as some of our statesmen have affirmed, in a mischievous and misguided spirit of sickly sentimentality, that our system of domestic slavery is a curse to the white population—a moral and political evil, much to be deplored, but incapable of being eradicated. Let the tree be judged by its fruit. More than half a century ago, one of the most enlightened statesmen who ever illustrated the parliamentary annals of Great Britain, looking unto political causes, with an eye of profound philosophy, ascribed the high and indomitable spirit of liberty which distinguished the southern colonies, to the existence of domestic slavery; referring to the example of the free states of antiquity as a confirmation of his theory. Since those colonies have become independent states, they have amply sustained the glory of their primitive character. There is no coloring of national vanity in the assertion, which impartial history will not ratify, that the principles of rational liberty are not less thoroughly understood, and have been more vigilantly, resolutely and effectively defended against all the encroachments of power, by the slave-holding states, than by any other members of the confederacy. In which of our great political conflicts is it, that they have not been arrayed against every form of usurpation, and fighting under the flag of liberty? Indeed, it is a fact of historical notoriety, that those great whig principles of liberty, by which government is restrained within constitutional limits, have had their origin, and for a long time had their only abiding-place, in the slave-holding states.

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Though the right to emancipate our slaves, by coercive legislation, has been very generally disclaimed by popular assemblages in the non-slave-holding states, it is nevertheless important, that each of those states should give this disclaimer the authentic and authoritative form of a legislative declaration, to be preserved as a permanent record for our future security. Our right to demand of those states the enactment of laws for the punishment of those enemies of our peace, who avail themselves of the sanctuary of their sovereign jurisdiction to wage a war of extermination against us, is founded on one of the most salutary and conservative principles of international law. Every state is under the most sacred obligations, not only to abstain from all such interferance with the institutions of another as is calculated to disturb its tranquility or endanger its safety, but to prevent its citizens or subjects from such interference, either by inflicting condign punishment itself, or by delivering them up to the justice of the offended community. As between separate and independent nations, the refusal of a state to punish these offensive proceedings against another, by its citizens or subjects, makes the state so refusing an accomplice in the outrage, and furnishes a just cause of war. These principles of international law are universally admitted, and none have been more sacredly observed by just and enlightened nations. The obligations of the non-slave-holding states to punish and repress the hostile proceedings of their citizens against our domestic institutions and tranquility, are greatly increased both by the nature of those proceedings, and the fraternal relation which subsists between the states of this confederacy. For no outrage against any community can be greater than to stir up the elements of servile insurrection, and no obligation to repress it can be more sacred than that which adds to the sanctions of international law the solemn guarantee of a constitutional compact, which is at once the bond and the condition of our union. The liberal, enlighted and magnanimous conduct of the people in many portions of the non-slave-holding states, forbids us to anticipate a refusal on the part of those states to fulfil these high obligations of national faith and duty. And we have the less reason to look forward to this inauspicious result, from considering the necessary consequences which would follow, to the people of those states and of the whole commercial world, from the general emancipation of our slaves. These consequences may be presented, as an irresistable appeal, to every rational philanthropist in Europe or America. It is clearly demonstrable, that the production of cotton depends not so much on soil and climate as on the existence of domestic slavery. In relaxing latitudes, where it grows, not one half the quantity would be produced, but for the existence of this institution, and every practical planter will concur in the opinon, that if all the slaves in these states were now emancipated, the American crop would be reduced, the very next year, from one million two hundred thousand, to six hundred thousand bales. No great skill in political economy will be required to estimate how enormously the price of cotton would be increased by this change, and no one who will consider how largely this staple contributes to the wealth of manufacturing nations, and to the necessaries and comforts of the poorer classes all over the world, can fail to perceive the disastrous effects of so great a reduction in the quantity and so great an enhancement in the price of it. In Great Britain, France, and the United States, the catastrophe would be overwhelming; and it is not extravagant to say, that for little more than two millions of negro slaves cut loose from their tranquil moorings and set adrift upon the untried ocean of at least a doubtful experiment, ten millions of poor white people would be reduced to destitution, pauperism and starvation. An anxious desire to avoid the last sad alternative of an injured community, prompts this final appeal to the interests and enlightened philanthrophy of our confederate states. And we cannot permit ourselves to believe, that our just demands, thus supported by every consideration of humanity and duty, will be rejected by states, who are united to us by so many social and political ties, and who have so deep an interest in the preservation of that union.

From the Richmond Whig.

EXTRAORDINARY CROP OF CORN.

Mr. Robert Ship, the manager of the plantation of Mr. Tarlton Fleming, Goochland county, has

sent us a certificate of an extraordinary crop of corn raised by him the present year, *namely, eleven hundred barrels* from an *eighty acre field*, which is about fourteen barrels to the acre.

WAGES OF FEMALE LABOR.

To the Editor of the Farmers' Register.

I have read very carefully the three Nos. on the low rate of female wages, and it is not saying too much, that I was very deeply interested in them. They brought to memory interesting and painful occurrences that had fallen under my own observation. I have known a healthy and industrious woman to labor 14 hours a day with her needle, and earn 12½ cents, having five children to support, and all of these children doing nothing—(for they had nothing to do, in which their mother could be present to instruct them)—and I have known her poor neighbor (also a widow) and her one little boy to earn in 12 hours, from 75 cents to $1 25 cents in a tobacco factory, in a little corner by themselves, separate from the black people. I have seen direct and systematic means employed to raise the wages of seamstresses, and in every case, while good was done, and suffering, for the time, sowewhat relieved, the association soon exhausted all its means, and went down. Some of the writer's remarks too, brought to my mind the fact announced by a missionary in the island of Ceylon, viz: that there, it is very common to see strong men washing and ironing nice cambrics and muslins. Have not the habits of Christian communities much of the very same absurdities in them? No man can travel through New-England without feeling that there, women have decided advantages over women in the south. The avenues to a fair compensation for labor are abundantly more open there, than here. I have, during the last summer, visited many of the northern factories in special reference to the point of morals, and I have satisfied myself, that on the whole, the morals of young people at *their* factories are as good as among the same class of people on farms. It seems to me also, that in this country there is no lack of *soil*, on which profitably to cousume the strength of the great body of males, and that we are specially criminal if we allow a system to gain footing among us, which shall in the end ruin the prospects of indigent but virtuous females. Agriculture and horticulture in this land are yet merely in the rudest state, especially the latter.

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CONSTITUTIONS OF AGRICULTURAL SOCIETIES.

We have received from a valued correspondent, and one whom we would be pleased to serve or gratify, a copy of the constitution of a new agricultural society, with the request to publish it in the Farmers' Register. We are debarred from compliance, by the obligation of a rule which has been for some time in force, which is, *not* to publish in this journal the constitution or rules of any agricultural society, unless the provisions require notice for their novel or peculiar character, or unless inseparably connected with other transactions of more interest and practical value to the agricultural public. We have seen published, within the last fifteen years, the constitutions of some dozens of different agricultural societies, from not one of which was any subsequent action of value, or report of agricultural facts, ever heard. This procedure has indeed been so common, and has so generally served to introduce to public notice a body that has not attracted notice in any other way—the publication of the constitution has so often been the prelude to the dissolution of the society—that such publications have ceased to confer honor—and indeed have almost become a subject for ridicule. We think it best therefore for agricultural societies not to publish their *sayings* until they can accompany them with something of their *doings*—and though desirous of avoiding the publication of the former class, if alone, we shall be at all times rejoiced to receive reports of, and promulgate the *acts*, of all agricultural societies. There can be no newly formed society of which we would form a more favorable opinion (judging from its materials) than the one to which we are now compelled to show such an appearance of scant courtesy: and should it take the rare course of drawing out the talents of its members, we hope hereafter to have many of our pages filled by their memoirs, transactions, and reports of their usefnl labors.

MEANS TO FACILITATE THE ANALYZING OF MARL, AND OTHER CALCAREOUS MANURES, AND SOILS.

While the importance of testing the strength and comparative value of marls, has been earnestly urged on those who are using, or intend to use such manures, this journal has also furnished plain and full directions for the process, by attending to which, any careful experimenter would be enabled to perform the operation for himself, with a suffieient degree of accuracy for practical and common purposes. With the hope of still more advancing this object, we have caused to be made, for sale, several sets of the apparatus invented by Professor W. B. Rogers, and described by him at page 354, vol. II of Farmers' Register. Owing to the difficulties which have attended the manufacture of instruments so novel and delicate, and requiring so much skill and accuracy in the construction, we have waited long for the supply—but have just learned that the articles are now ready, and will be delivered in Petersburg, perhaps before this number will be issued.

But even with this new facility, we doubt (judging from experience) whether more than a few individuals will take the trouble to test the value of their calcareous manures. Some indeed have already availed themselves of the instructions given for this purpose. But much the greater number have entirely neglected this very necessary part of the business of marling, unless they could have the testing done by some other person. We have complied with many requests for such services—and have never grudged the labor, when it promised to be of service to the public, and to aid the extension of improvements by calcareous manures—nor even to serve the private interests of personal

friends. But there have been so many such demands on our time and labor, that a part have been necessarily neglected, and others have been attended to only after much delay.

It has occurred to us that the wishes and convenience of all parties might be promoted by the establishment of a suitable laboratory for this limited but useful branch of operative chemistry, and making it the business of a competent operator to examine all specimens of marl, &c. sent for that purpose. This, like every other kind of mechanical labor, can be executed more easily and cheaply, as well as more perfectly, on a large than on a small scale. With suitable apparatus and arrangements, an operator could test the strength of twenty specimens of marl, with more ease and correctness than a single specimen,if tried alone, and under the ordinary disadvantages. If therefore such a new business was enough encouraged, correct trials of specimens and reports might be obtained at a less cost for each, than the mere trouble attending a single trial even to the experienced and skilful analyst.

Any persons who may desire to obtain such services, *for their own private convenience or profit*, may send specimens for examination, to our care—and should the demand justify the means, a competent operator will be induced to undertake the trouble,for the profit. Our apparatus (Davy's,as well as Rogers',) and our instructions,will be given in aid of the objects, and such general attention as will secure our entire confidence in the correctness of the results reported. If no other conveyance offers, very small specimens (say 20 grains each,) may be sent by mail, *postage paid*. In that case, each specimen should be dried, pounded and secured by paste in a separate small paper cover. The postage on an ounce package is the same as on a quadruple letter. If larger specimens are sent, so as to show the appearance of the earth as presented naturally, they should be well wrapped separately,to prevent any communication or mixture, and the whole closely packed in a strong box, for transportation.

The charge for such examinations must depend somewhat on the extent of the business: but it cannot exceed 50 cents for a single specimen—nor half that rate for each of 20 specimens provided at once. It should be understood that the proportion of *calcareous earth* (or *carbonate of lime*,) contained, is the only ingredient which is undertaken to be ascertained with certainty. Other ingredients (if supposed to be present, and required to be known,) might demand not only far more labor, but also more skill and science then we would promise could be exercised.

CHANGE OF ADDRESS—NOTICE TO CORRESPONDENTS AND SUBSCRIBERS TO THE FARMERS' REGISTER.

The Farmers' Register will hereafter be published in Petersburg, Va. to which place all letters to the editor must be directed. As the editor has no longer the franking privilege, (as postmaster,) and as the widely extended correspondence which exists, (and is necessary, for properly conducting such a publication,) will make the tax of postage very heavy under any circumstances, he requests of his patrons and correspondents, so far as their convenience may permit, to adopt such modes of transmitting payments, and other communications on *private* business, as may somewhat lessen this burden.

The change of circumstances especially requires that the editor should withdraw his former request to have small specimens of particular soils, &c. *sent by mail* for examination. By the attention paid to that request by several correspondents, he has been greatly obliged, and he may dare to say, that agricultural science has been thereby advanced.

VOL. I. OF FARMERS' REGISTER.

By procuring some of the deficient Nos. a few more copies of Vol. I. have been made complete, and may be obtained at $5, by the earliest applicants for entire sets of the work, including the current Vol. III.

For any single No. of the first Vol. from 1 to 9, inclusive, returned uninjured, *and free of postage*, a No. of Vol. II. or III. will be given in exchange. For each one of a few copies of Nos. 2 and 6, Vol. I. $1 will be paid on delivery, or 3 later odd Nos. The second Vol. bound up with the Essay on Calcareous Manures will be given for each set of the first 9 Nos. of Vol. I. returned as above.

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2. Or five *new* subscribers by sending their names and $20 at one time to the editor, will receive their copies for one year, for that sum, or at $4 for each. Purchasers of any 5 volumes (except Vol. I.) at one time in like manner, shall have them for $20.

3. The risk of loss of payments for subscriptions, which have been properly committed to the mail, or to the hands of a postmaster, is assumed by the editor.

4. For all copies not received by mail, duplicates will be furnished to those subscribers who have complied with their own obligations.

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